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DOMESTIC ENGINEERING

The Plumbing and Heating Weekly

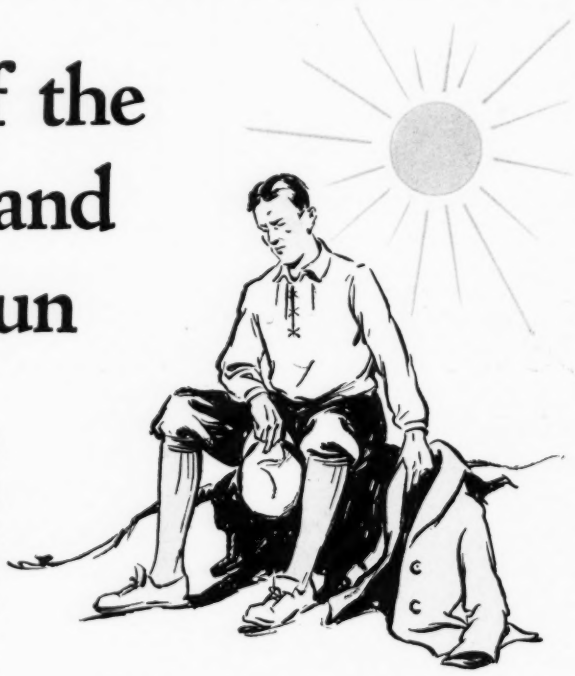
Dr. Kegel, Chicago's Commissioner of Health, testing sterilizing apparatus

Cross Connections

An interesting investigation in connection with a dangerous possibility in hospitals

JUNE 23, 1928

Fable of the Wind and the Sun



There was once a dispute as to which was the stronger—the wind or the sun. They agreed to settle the matter by seeing which could soonest make a traveler take off his coat. So the wind blew fierce, trying to blow the coat off, but the traveler only wrapped it around him the tighter. Then the sun came out and, under its genial warmth, the traveler soon sat down and cast his coat on the ground.

—*Aesop's Fables* (revised)

In very much the same way, you sometimes see heating contractors trying to *force* sales by featuring a low price, only to find that prospects, losing confidence in their bids, wrap themselves the tighter in a cloak of doubt and suspicion.

How much wiser the heating contractor who employs *persuasion*, instead of force. How much surer of success is he who wins his jobs under the genial warmth of quality assurances that melt away suspicion and resistance.

If you ask a fair profit and submit with your bid, distinctive quality features such as Weil-McLain corrugated heating surfaces, long back-and-forth fire travel and scientific combustion, you are taking the pleasantest, easiest path to business growth and success.

WEIL-McLAIN COMPANY

Manufacturing Division
Michigan City, Indiana

Executive Offices
Chicago, Illinois

Fight fuel waste with

Weil-McLain

SCIENTIFIC COMBUSTION

BOILERS

in 1928

"SEE THE WEIL-McLAIN JOBBER IN YOUR TERRITORY"

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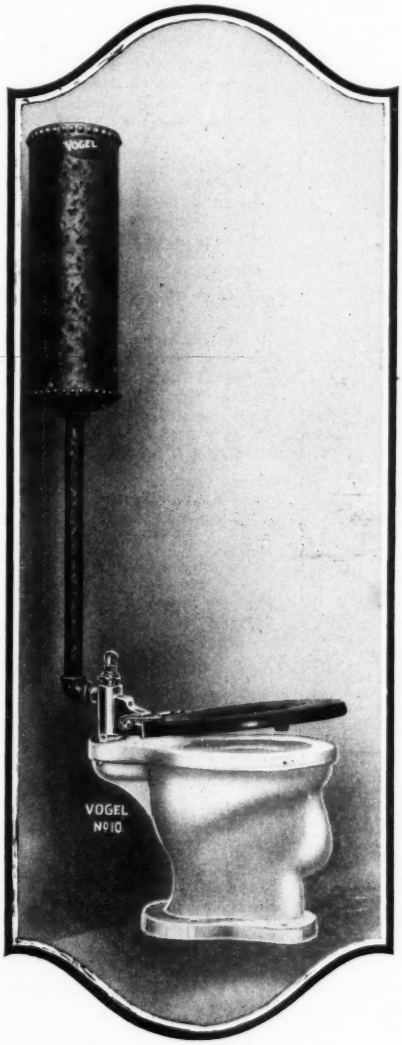

VOGEL *Number Ten Closet*

This Vacation Business

The vacation bug is in the air and it's a great thing.

Great, because it gives you a chance to slip off and lay around thinking how much **VOGEL** business you've done and how much you're going to do, and great because if you want to do a little extra work, vacation time gives you plenty of opportunity. With the schools shutting down and doing repair work, now is the time to show them why they need the **VOGEL** Number Ten Seat Action Water Closet. Boards of Education always want to save money and you can show them how it can be done with **VOGEL**.

And don't forget, **VOGEL** profits will send you on the kind of a vacation you've always wanted.

Jovo—

Jos. A. Vogel Co.

Wilmington, Del. **St. Louis, Mo.**

VOGEL
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The Envoy, 98th St. & West End Ave., New York.
Equipped with Heggie-Simplex Steel Boilers.
Arch.: L. Pisciotta, Bronx, N.Y.
Engineer: Harold Ga Nun Bronx, New York.
Heating Contractor: P. R. Tully Co., Bronx, N. Y.

Comfortable Tenants Renew Their Leases

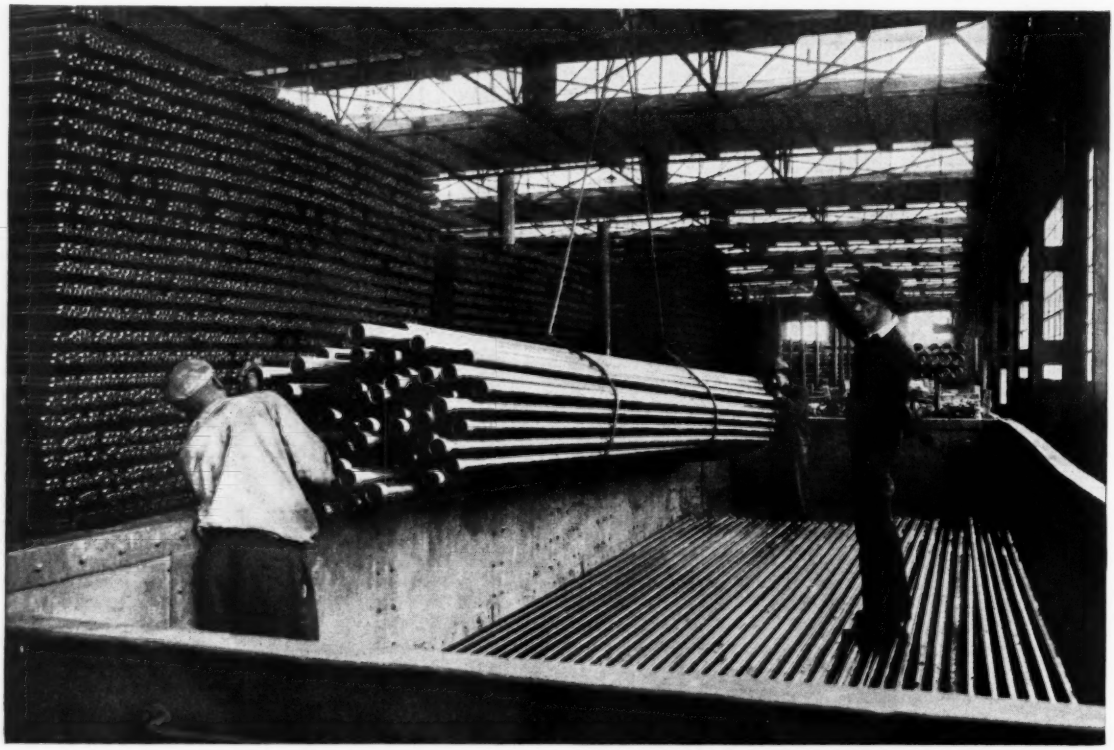
"PLENTY of heat—available at all times," is one of the first *essentials* in keeping tenants. Architects and owners in rapidly increasing numbers are turning to Heggie-Simplex Steel Boilers for the dependability that makes certain this important essential. These scientifically designed heating units assure complete dependability at costs that mean substantial additions to the earning capacities of the buildings in which they are installed.

Heggie-Simplex Boiler Co., Joliet, Illinois. Representatives in principal cities — telephone and address listed under "Heggie-Simplex Boiler Company."

HEGGIE-SIMPLEX

ELECTRIC-WELDED STEEL HEATING BOILERS

Steel Pipe, ordered *today* . . .



on its way to you *tomorrow*

IN these days of hand-to-mouth buying it is not always possible to anticipate requirements. Over night, a situation may arise necessitating a rush shipment of steel pipe.

The new Bethlehem Pipe Mills, at Maryland Plant, Sparrows Point, Md., near Baltimore, are especially well organized and equipped to meet just such an emergency. The facilities for storing pipe are exceptional, and a large, well-assorted stock is constantly maintained. An order for any except a most unusual quantity or size can be filled immediately.

A complete stock plus favorable location of the mills and remarkable shipping facilities

underlie the steel pipe service that Bethlehem offers. Three trunk-line railroads enter Maryland Plant; consequently prompt inland shipments can be made. And the location of Maryland Plant on tide-water permits equally prompt shipments by steamer to points on the Atlantic Seaboard and on the Gulf and Pacific Coasts. The steel pipe can be loaded directly into the vessel at the plant.

You can obtain Bethlehem Steel Pipe through your jobber. If an immediate shipment is required, a wire or phone message to the nearest Bethlehem District Office today will cause the pipe to be loaded and on its way to you tomorrow.

BETHLEHEM STEEL COMPANY, *General Offices:* BETHLEHEM, PA.

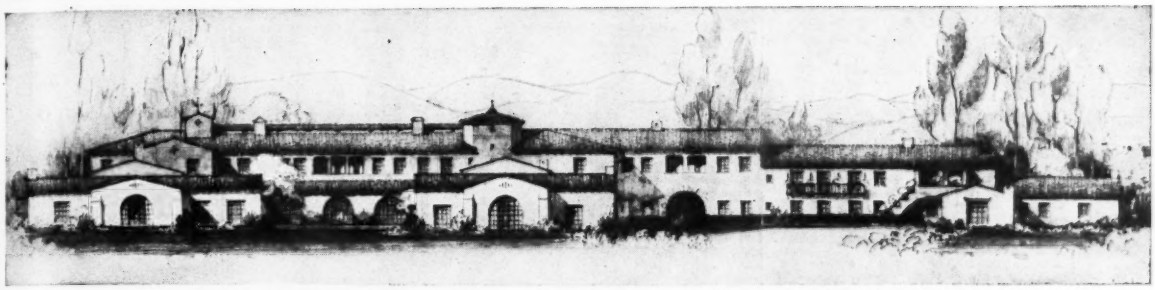
District Offices: New York Boston Philadelphia Baltimore Washington Atlanta Pittsburgh Buffalo Cleveland Detroit Cincinnati Chicago St. Louis San Francisco Los Angeles Seattle Portland

Bethlehem Steel Export Corporation, 25 Broadway, New York City, Sole Exporter of our Commercial Products

Bethlehem Steel Pipe is the product of a complete steel producing organization

BETHLEHEM STEEL PIPE

The name "Bethlehem" appears at intervals on every length of Bethlehem Steel Pipe



The beautiful Santa Barbara Biltmore Hotel (as other Bowman hotels) is equipped with Johns-Manville Traps

Johns-Manville Steam Traps

are simple and certain in action regardless of size

FOR every use from radiators to the heaviest duty there is a Johns-Manville Steam Trap. There are four points of advantage which have won the high opinion of steam fitters and engineers for our steam traps.

(1.) The Johns-Manville Steam Trap has no toggles, or other leverage complications. (2.) There is only one moving part, a hollow seamless copper ball that floats, unattached, in the condensate within the trap body. (3.) Little to wear—nothing to adjust. (4.) Every trap may be opened easily for inspection, or cleaning; removal of the one-piece circular cover exposes all interior parts.

This simplicity insures permanent efficiency and has won the high opinion of three hundred thousand users.

The Silent Watchman

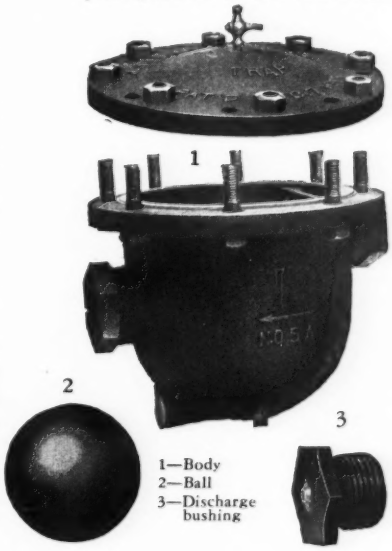
Because of its silent and efficient manner of operation, the Johns-Manville Radiator Trap has been installed in prominent hotels (including the Bowman-Biltmore chain), office buildings, apartment houses and hundreds of home heating plants.

Hot Water Heating With Steam

Coupled with our Radiator Trap is the new Johns-Manville Radiator Control Valve, which possesses new features heretofore never obtained in steam heating. This new valve makes possible the control of radiator temperatures and gives all the desirable effects that before were only obtainable with hot water heating. A vacuum or gravity return line system of steam heating equipped with Johns-Manville Radiator Control Valves has all the quick action and flexibility features of steam, and all the advantages of a hot water heating system, without the disadvantages.

With our Radiator Trap this valve makes the perfect radiator equipment.

This illustration shows the simplicity of the Johns-Manville Steam Trap.



Johns-Manville

Steam and Radiator Traps
Radiator Control Valves

JOHNS-MANVILLE CORPORATION
New York, Chicago, Cleveland, San Francisco
For Canada:
Canadian Johns-Manville Co., Ltd., Toronto
(Mail coupon to nearest branch)

Please send me information on Johns-Manville Steam Traps and Control Valves.

Name.....

Address.....

City.....State.....

S. T.-61

*Make This A Banner Year

—*with vigorous advertising*

THIS is going to be a great year for the plumbing and heating business. Be sure to get your share by advertising your services and products.

"Domestic Engineering" makes the preparation of your advertising campaigns easy for you. Each week we publish a page of Retail Advertising Service on which are four carefully prepared advertising "helps." Use the copy free of charge and the illustrations at the rate of $4.20 for a series of twelve.

"Join the service" — use the coupon below.

**Tear out and mail this coupon — now!*

DOMESTIC ENGINEERING, 1900 Prairie Ave., Chicago

Please enter my order for three months' use of your Retail Advertising Service. I'm going to advertise!

Name..... *City and State*.....

**We have made an important change in the Advertising Service we have been offering. Instead of the 2-column newspaper advertisement, we offer a single column ad, four inches high, with an alternate layout 2 columns wide and two inches high. You'll find this page in every issue.*

MOST GALLONS *Per Dollar!*

80¢

NOW BUYS WHAT FORMERLY COST

$1

NOW Duro Pumps and Water Systems are more than ever the greatest value, for Duro engineers again have effected important improvements in design.

Greater capacities mean that 80c will now do what formerly required $1.00.

Long recognized as the standard of comparison for water systems, Duro has set a new mark for itself.

The new models, with their refinements and greater capacities, at extraordinarily low prices, are conclusive proof that progress is only made through change.

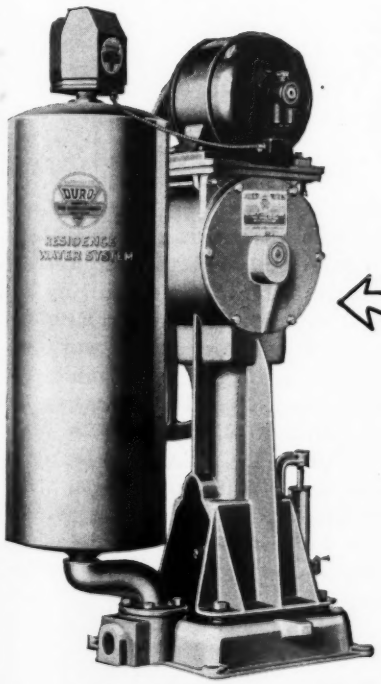
Duro Pumps and Water Systems are sold only through legitimate trade channels.

Why not line up with Duro, the live one, *NOW*, and get the prestige and profits which come with selling a leader. We are prepared to finance time-payment sales.

Write for new price sheet and complete details.

THE DURO COMPANY

1006 Monument Ave. Dayton, Ohio

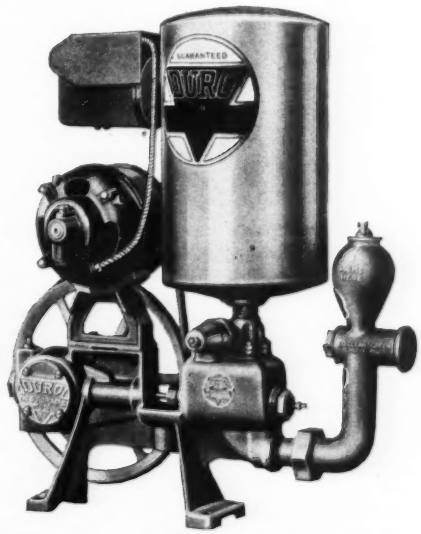


To the left the No. 900 Deep Well System, Pumping Capacities, *100 to 280 gallons per hour.*

Retail Price—
as low as $155.00 f.o.b. Dayton.

THINK!—No. 250 Shallow Well Fresh Flow System. Pumping *capacity 250 gallons per hour.*

Retail Price—
$68.50 f.o.b. Dayton.



DURO WATER SYSTEMS

Canfield

DEMAND H.O. CANFIELD CO. RUBBER GOODS

For Your Protection

In bi-transit wastes, duplex strainers, sink plugs, metal to metal trap joints, demand that the fittings you buy be equipped with H. O. Canfield Rubber Washers. It means easier work—a better job—and the assurance to your customer that these fitting to fixture joints will be leakless and trouble-free. H. O. Canfield Rubber Washers will stand up under the almost constant flow of heated water used in buildings today. Specify them by name and accept no substitutes.

H.O. CANFIELD COMPANY

BRIDGEPORT CONN.

"Service" - means what?

"SERVICE" is the manufacturer's "before sale" pledge for "after sale" redemption. The Fulton Sylphon Company makes no invidious comparisons, but merely explains its own conception of a much employed commercial "urge" and sets forth its long established policy regarding its service obligations.

Years of Satisfaction

Years of uninterrupted satisfactory performances by Sylphon Temperature or Pressure Control Regulators, in an extremely wide range of diversified applications, have demonstrated the quality of service with which we surround the installation and continuous operation of our products.

Thousands Know It

Thousands of users know these facts, but to those unacquainted with the Fulton Sylphon Company standard of manufacture and sale, we give here our service policy which has been sincerely practiced for twenty years and which will be rigidly adhered to in the future.

Interested, Efficient and Obtainable

Sylphon Service always interested, efficient and obtainable *begins when you first evidence an interest* in Sylphon Temperature or Pressure Regulation and *lasts as long as such instruments* as you may ultimately employ, *continue in operation.*

In response to your inquiry our representative calls, not merely to obtain an order but, to analyze your temperature control problem and to assist you in its successful solution.

We maintain a national organization of thirty-five sales agencies specially trained to render prompt service. Our field and factory representatives are always available for your assistance.

The Name Sylphon ***On a Regulator Is a Positive Assurance***

It signifies a guarantee of positive, safe and efficient operation backed by the resources of the *largest manufacturer of thermostatic instruments in the world.*

Your correspondence relative to any Sylphon application will be welcomed. The coupon is for your convenience.

***The* ORIGINAL GENUINE SYLPHON BELLOWS**

The motor element in all Sylphon Instruments is the most accurate, durable and flexible temperature control unit known to science.

THE FULTON SYLPHON COMPANY, *Knoxville, Tenn., U. S. A.*

Sales Offices: New York, Chicago, Philadelphia, Boston, Detroit. All Principal Cities in the U. S. DEPT. K

Gentlemen:

We are interested in the application of Sylphon Bellows to

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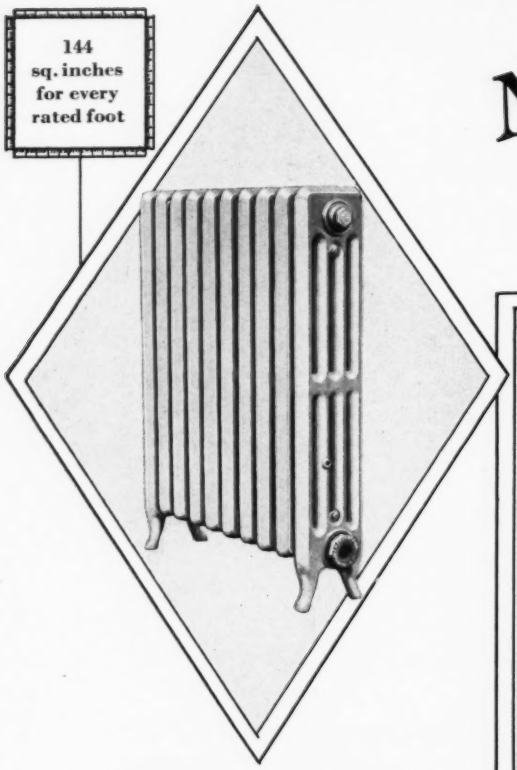
Company.....

Address.....

City..... State.....

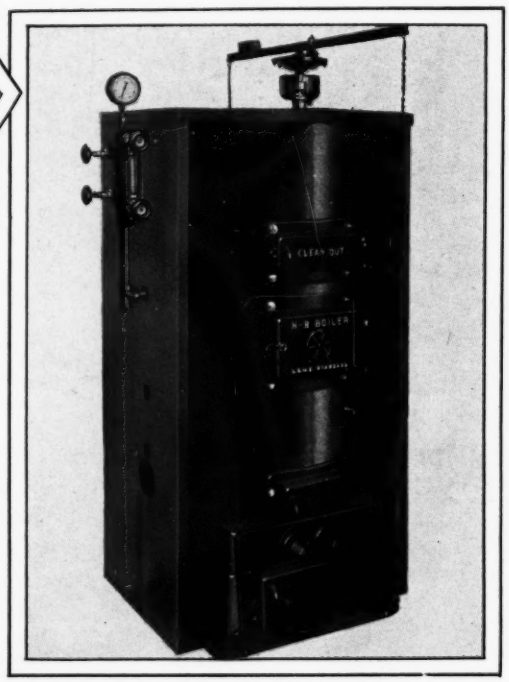
THE FULTON SYLPHON COMPANY — Sylphon — AUTOMATIC TEMPERATURE CONTROL



NEW!

The H. B. Boiler

Tailored in Mountain Ash Scarlet



"144"

The NEW

H. B. Smith Full Surface Radiator

In modern selling, beauty of design and color have taken a leading part. Even radiators and boilers, once considered for their utility and nothing else, have graduated into the colorful scheme of things-as-they-are.

Efficiency plus this NEW Beauty characterize these two new products. "144" is an attractive design to harmonize with modern ideas of interior decoration. And the H. B. Boiler handsomely tailored in Mountain Ash Scarlet to help make another room of the cellar.

The H. B. Smith "144" is a Full Surface radiator. Every foot of rated surface contains 144 square inches of radiator surface. More compact, more beautiful.

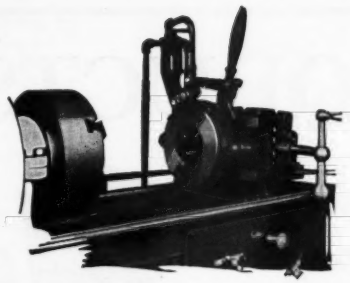
Write us for complete information. Also for information on our new gasket which saves you time and money on installations of our Boilers. The H. B. Smith Co., Dept. A-49, Westfield, Mass.

THE H·B·SMITH
BOILERS & RADIATORS
Used in fine homes and buildings since 1860

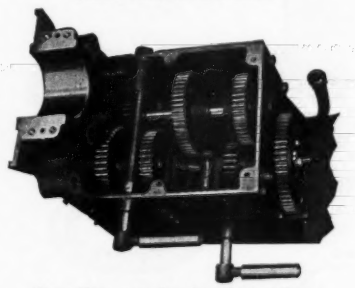
The H. B. Smith Boilers for steam, hot water and vapor heating; radiators; and hot water supply boilers; for every type and size of private home, office building, factory and public building.

Sales Offices and Warehouses:

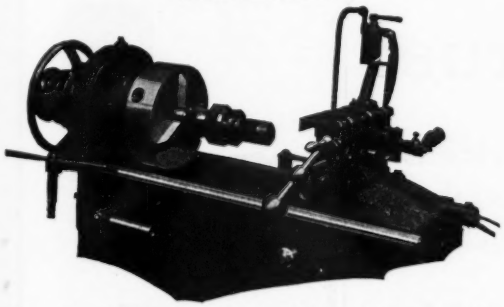
New York: 10 E. 41st St. Boston: 640 Main St., Cambridge Philadelphia: 49th St. & Grays Ave.
Cleveland: 1108 Webster Ave. S. E. Westfield, Mass.



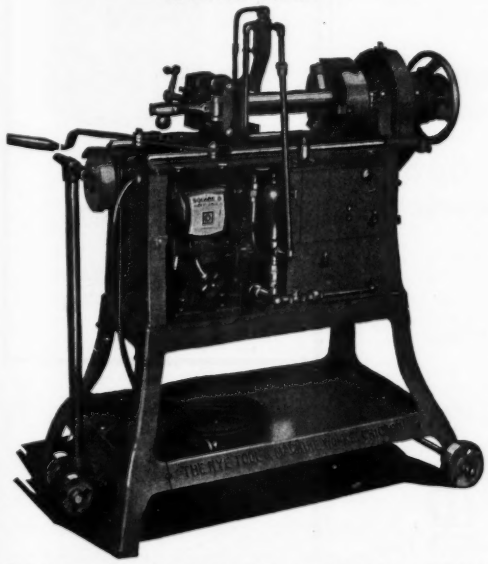
Quick Opening Die Head



Gear Case running in oil assuring perfect lubrication



View of machine showing position of nipple chuck, cutting off tool and reamer



CAPACITY: ¼ to 2 inches inclusive. With Universal Drive Shaft will operate stocks up to 12 inches. Note grinding attachment—2600 R. P. M.

A letter from Harry G. Nye

To the Plumbers and Steamfitters of the U. S. A.:

Fellow Citizens:

Does your wife want you to play bridge, too? Well, then, here's my hand. I don't mean any of my bridge hands. I wouldn't be mean enough to hand any man that. I mean my sympathy. I suppose there are as many men now learning to play bridge as there are learning to cuss, and one is to blame for the other.

I have nothing against the game of bridge. I believe it is more sinned against than sinning. I guess it is a good game, but not as I play it. But it is the only game I know of to which no game rules apply. They want you to play it as bad in the summer as in the winter, and they ought to be satisfied. You do.

One of the principal bridge experts, besides my wife, is a man named Work, and it seems appropriate. It is one of the few games that needs a two-man crew to do the shuffling and the dealing. One shuffles while the other deals. It's a good idea. That keeps two people, anyway, from auditing the score and telling the book-keeper where he's wrong.

There are several books of rules for playing bridge, one of them on the living-room table, one of them on the front room table, one of them in the bedroom, and one in the bathroom. A bridge-hound said to me the other day, "Bridge is a wonderful game—you can't get away from it." I'll say you can't—not in our house anyway.

But there is one rule that Mr. Work and Mr. Whitehead left out of all the books they have scattered around our premises, or rules. That is a set of rules regarding playing bridge with your wife, either pro or con. They have rules for other forms of fighting; why not bridge?

The first rule regarding playing bridge with your wife ought to be never to play with your wife for a partner. The second rule ought to be never to play unless she IS your partner. Your wife often sighs and says, "My, I wish you played a getter game of bridge"—but try it some time.

Try it some time when she sits on your right or left, or east or west, or wherever it is, and the hostess has hung up a perfectly good 30-cent doily for first prize. Before she gets through she will be sitting not only on your east or left but all over you.

But here's how to square yourself. Buy Nye tools. They will make you so good-natured that you will come home singing like a lark, and even bridge can't make you sore—Nye tools work so much easier and faster and last so much longer than all the others.

Fraternally yours,

Harry G Nye

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OTHERWISE KNOWN AS

Universal Shaft operating stocks up to 12 inches

THE NYE TOOL AND MACHINE WORKS

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"A DEPENDABLE SOURCE OF SUPPLY"

"Domestic Engineering" answers hundreds of technical questions asked by subscribers from all over the country each year.

Between Ourselves

"We must avoid unwarranted dissension between departments of our industry."—Walter Klie, president, H. & P. C. N. A.

The plumber has often been characterized as being as important to the public health as the physician, and in a recent test made in Chicago, the commissioner of health of that city proved the direct relationship of good plumbing and good health in the hospitals of that city. On the front cover we have a photo of Dr. Kegel making some of these tests.

Your Editor

IT WAS found that the post-operation infections in a number of Chicago hospitals were due to faulty plumbing systems, and especially to bad cross connections. In this issue we have a story on "Cross Connections" by Joel I. Connolly, chief of the bureau of sanitary engineering of the Chicago department of health. Mr. Connolly tells of an inspection trip he made with Dr. Arnold Kegel, health commissioner of Chicago, in which a number of hospitals was inspected, and gives the impressions obtained on that trip. The article is of especial interest to plumbing inspectors and master plumbers who do work in hospitals or office buildings where doctors' offices are among the tenants.

THE heating and piping contractor, while making strenuous efforts toward a strong merchandising campaign and selling additional heating equipment through these efforts, has not forgotten that the fundamental part of his business is mechanical. Proof of this fact is contained in the report of the standardization committee of the Heating and Piping Contractors National Association at its recent annual convention in Philadelphia. The report stated that work was being done, or had been done, on the standardization of the following: data on steam pipe sizes; radiator estimating; coefficients of transmissions for walls, ceilings and roofs of different types of insulation; hot water pipe sizes; unit heater tests; efficiency of new types of radiation; radiator shields and enclosures; simplification of hack saw blades; standardization of flanges and flanged and screwed fittings; several others are also contemplated.

THIS week we have another story by the Sales Manager who has decided that the plumbing and heating industry is the proper outlet for his goods. This time he takes Buckingham-Routh, Inc., New Haven, Conn., as an example of plumbing and heating contractors who sell materials. He points out how this company merchandises its service, and thereby sells plumbing and heating material in large quantities.

"WE COULD not do without 'Domestic Engineering.' It is certainly an aid to any plumber."—So comments the Newborn Plumbing Co., Mayfield, Ky., in referring to "Your Weekly."

RESALE prices have been advocated for some time by various manufacturers in the field with the thought that the establishing of a resale price would clear up some of the price competition in the industry. As a means of reaching a decision on this important question, the North Carolina Association of Plumbing and Heating Contractors, at its recent annual convention, adopted a resolution advocating a resale price to the consumer for manufacturers.

TWO interesting articles on ventilation are being published this week, both a little different from the general run of ventilating stories. The first is an article by A. W. Barnes of London, Eng., and it is called "Ventilation in the Light of British Scientific Research." The second article is by Samuel R. Lewis, and he comments on Mr. Barnes' article. There is still some disagreement on the subject of ventilation, and these two articles will give some light on the controversy.

OUR next issue will be the annual convention number of the National Association of Master Plumbers. A report of the business sessions of the convention, the exposition held in conjunction with it, the women's auxiliary activities and the social activities will be contained in the issue. The front cover of this issue will be of especial interest, as will also a special insert on Erie, Pa.

The man who is so busy that he does not have time to read his trade paper is like the man who was so busy chopping wood that he did not have time to sharpen his axe

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Hundreds of contractors in all parts of the country are realizing the tremendous efficiency of the "TOLEDO" No. 1000M pipe machine. This letter typifies the kind of service these owners are receiving from this machine, and how they are profiting by its use.

"Twenty-three hours out of twenty-four for several days at a stretch without any trouble whatever." A remarkable recommendation for any pipe machine, but not at all unusual for the "TOLEDO" No. 1000M.

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This machine with complete equipment for cutting, threading and reaming ½-in. to 2-in. pipe will cost you but $325.00 (West of the Rockies $341.25) F.O.B. Toledo, or your jobber's stock. You owe it to yourself to order one of these machines today and realize how remarkably efficient it really is.

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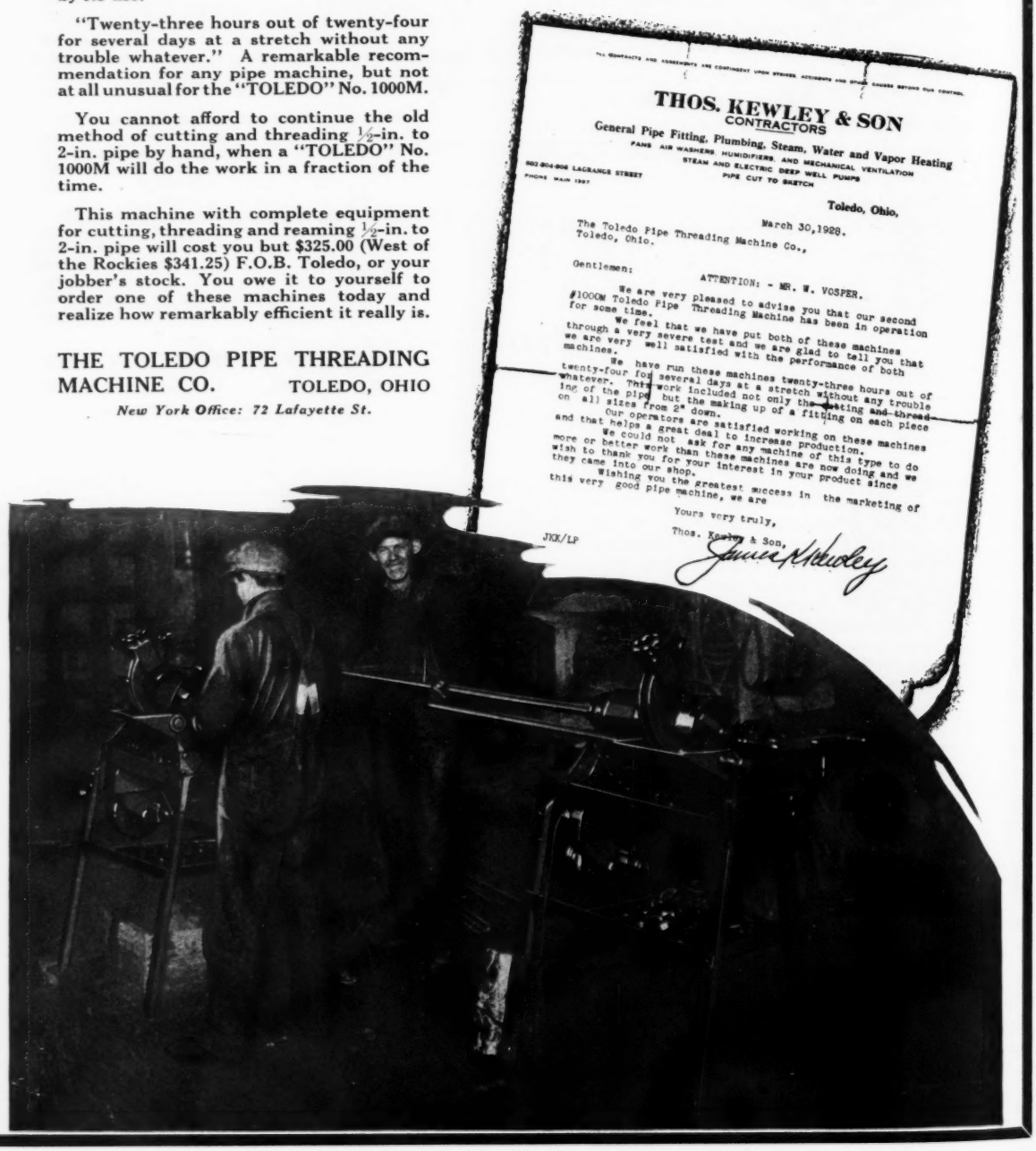

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Toledo, Ohio,
March 30,1928.

The Toledo Pipe Threading Machine Co.,
Toledo, Ohio.

Gentlemen:

ATTENTION: - MR. W. VOSPER.

We are very pleased to advise you that our second #1000M Toledo Pipe Threading Machine has been in operation for some time.

We feel that we have put both of these machines through a very severe test and we are glad to tell you that we are very well satisfied with the performance of both machines.

We have run these machines twenty-three hours out of twenty-four for several days at a stretch without any trouble whatever. This work included not only the cutting and threading of the pipe but the making up of a fitting on each piece on all sizes from 2" down.

Our operators are satisfied working on these machines and that helps a great deal to increase production.

We could not ask for any machine of this type to do more or better work than these machines are now doing and we wish to thank you for your interest in your product since they came into our shop.

Wishing you the greatest success in the marketing of this very good pipe machine, we are

Yours very truly,

Thos. Kewley & Son,

JKK/LP

DOMESTIC ENGINEERING

Vol. 123, No. 12
Whole No. 1854

The Plumbing and Heating Weekly

Chicago, Illinois
June 23, 1928

OBSERVATIONS

The Cash Discount

To make it attractive to the buyer to pay his bills promptly, and to help the seller get his collections in quickly, the cash discount for payment of a bill within a certain time has become a fairly general credit policy in business. In most cases, it is a discount of 2 per cent for payment within ten days. In some it is 2 per cent for payment on or before the tenth of the month following date of purchase. In still others, it amounts to 5 per cent or more for varying periods of time. But in any case it is an inducement to prompt payment, offered in the form of a contract the essential consideration of which is a prescribed time.

Because payment of a bill is a right which the seller has to expect without offering an inducement, the cash discount is a desirable privilege for the buyer, one which should not be abused. Nevertheless, its abuse is frequent—so frequent that it is a question if the cash discount is serving the purpose for which it is intended or, instead, is weakening the entire credit structure. Here is an opportunity for the buyer to effect a saving of 24 per cent over a period of a year on his average monthly purchases—certainly worth while. But some buyers seem to forget that this is an opportunity they can enjoy only if they take it within the set time. They will take this discount after the date for such a privilege has passed. They will let one month's bill go unpaid and take the discount on the current month's bill. They will operate, in short, as if "what they can get by with" is the essence of legitimate business.

An Abused Privilege

These same men would hardly go into a department store, for instance, a week after a special sale has been running, and expect to purchase goods at the sale price—announced as effective for just so many days. They could not exercise a 30-day option on a piece of property 40 days after they take it out. In other words, time is one of the stipulations in the performance of most business transactions—and it is the paramount consideration in the cash discount privilege. When, in ten days, a buyer does not pay a bill, that means that he does not accept the contract into which the seller is willing to enter to grant a discount for payment within that period. When, after ten days, he takes the discount, he is exercising a right that is not his.

The cash discount is too desirable to forfeit. Yet, if these abuses continue, it will be far better for the credit structure on which successful business is built to eliminate it entirely. And this would be too bad. "He discounts his bills" is one of the finest reputations a business man can have. It is a reputation that, to win, makes him money. In all fairness and in all selfishness, he should guard the cash discount privilege by observing its terms to the letter.

THE NATIONAL CONVENTION

While this issue is in preparation and distribution the 46th annual convention of the National Association of Master Plumbers is in session at Memphis, Tennessee. In next week's issue will be a complete report of the discussions and resolutions acted upon there. At this writing a large attendance is assured. That is well, for business problems of today need group thinking and concerted action. We want to point out, though, that the plans adopted in Memphis by those in attendance will require the support of the entire industry which the delegates represent. Every master plumber, therefore, should make it his business to know what happens so as to be in position to throw his efforts into the general movement to advance the plumbing industry to a higher plane of prosperity and public confidence.

Well Spent

It speaks well for the success of co-operative, association advertising that the Chicago Master Steamfitters' Association appropriates $20,000 a year to provide for its billboard and direct-mail campaign on certified "heat by radiator." This amounts to an average cost per member of $130—no small amount, as many associations who have had trouble in raising a fraction of that will agree. But Harry M. Hart, retiring president of the Heating and Piping Contractors National Association, told, at the recent convention of this organization, why the Chicago members were satisfied to pay such an amount. He said, in discussing the certified heating plan in Chicago—which is the keynote of the advertising: "We know that in Chicago the movement has resulted in a perceptible increase in radiator heating. We believe in it thoroughly, as we know by actual experience how it works."

Advertising Pays

When an idea pays, it is worth money.

Cross Connections

By JOEL I. CONNOLLY

Chief of the Bureau of Sanitary Engineering, Department of Health, Chicago, Ill.

Joel I. Connolly

DR. ARNOLD H. KEGEL, commissioner of health of Chicago, announced recently at a meeting of the Illinois Medical Society, the discovery of a source of post-operative infections, interesting to plumbers and to hospital authorities alike.

For a quarter of a century, efforts have been made to learn the cause of infections following operations, and Dr. Kegel has been active in the search for the past ten years.

It was finally by the application of engineering principles that he hit upon the solution of the baffling problem. The sterile water, which is used for washing wounds, has many times come under suspicion, as has everything else in the operating room, but hitherto it has been absolved from blame for causing infections, because samples of the water, when examined, would prove actually to be sterile. The resemblance between outbreaks of communicable disease caused by pollution of drinking water supplies through cross-connections and the outbreaks of post-operative infections in hospitals, led Dr. Kegel again to turn his attention to the water supply, even though most others believed that it was in no way involved.

Bacteria and bacilli frequently found in water that is not properly safeguarded

Fig. 1.—Spore forming bacteria, bacillus chauvei. The white bodies in the enlarged ends are spores or "seeds" which are very resistant to heat and drying. These persist when the temperature is not raised sufficiently. Magnified 1000 times.—Fig. 2.—A spore former frequently found in water.—Fig. 3.—Bacillus coli, an index of pollution of water

He believed that the sterilizers were to blame and an investigation made jointly by Dr. Kegel and the writer on April 1, 1928, in a hospital having the usual type of sterilizers for water and instruments, confirmed his suspicions that the chance of infection exists.

How Infected Water May Be Siphoned from a Sterilizer

It was the practice there to sterilize utensils and instruments by boiling them in water contained in the sterilizers. Water was admitted to these sterilizers through a city water connection leading into the bottom, in each case. This water was heated by a steam coil to the boiling point to disinfect the instruments. There was, however, nothing to guarantee that a boiling temperature would be reached before the instruments were placed in the water. If, therefore, infected instruments were placed in the sterilizer while the water was cool and the inlet valve opened or leaking, a vacuum in the supply lines would easily siphon infected water from the sterilizer.

Such a vacuum was actually produced by closing a valve on the main supply pipe, as might be done at any time for making repairs. It might also occur by simultaneously opening a number of faucets on a lower floor.

THE STERILIZER DEFEATED ITS OWN PURPOSE

A HARMLESS dye was placed in the water in the sterilizer to visually represent infected material washed from the instruments. The inlet valve was opened to admit more water to the sterilizer and at the same time a faucet at a lower elevation was opened, with the result that the level of the water in the sterilizer dropped instead of rising. The sterilizer operated like an overhead storage tank. A few moments later the dyed water appeared at various faucets on lower floors. At this time, the valve on the main pipe was reopened and the dyed water then in the system was forced into pipes at higher elevations throughout the hospital. This discolored water was drawn from faucets in the operating room, in the surgical scrub-up room where the surgeons wash their hands, in the obstetrical preparation room, in the babies' nursery and in many other locations, frequently where drinking water might be drawn.

With the water in the supply pipes thus contaminated by siphonage from an instrument sterilizer, it is entirely possible that the infected water might flow into the sterile water tank through leaky valves. To demonstrate this possibility, an instrument sterilizer and a water sterilizer were connected in the usual manner, except that glass pipes instead of iron ones were used, at the exhibit at the Illinois Medical Society meeting referred to above. Dyed water was forced from the instrument sterilizer into the sterile water tanks and it was possible for all to see it flow through the transparent pipes.

It is ironical that a sterilizer, devised as a protection to health, should thus prove to be the means whereby infection should be spread, causing illness and sometimes leading to death itself.

Fig. 4.—Dr. Arnold H. Kegel, commissioner of health, pouring dye solution into a sterilizer in a hospital to test connection of this equipment with main supply of hospital

In the case cited, it requires no stretch of the imagination to picture the consequences if living disease germs from some suppurating wound or organ had been present in the sterilizer in lieu of dye. In that event, there would have been no warning color to indicate the danger.

The method just outlined is not the only one whereby infection might be introduced into the sterile water, although it is probably the most frequent. Frequently the drain pipe from an instrument sterilizer, the blow-off valve in the bottom of the sterile water tank, and the discharge pipe of the cooling coil in the latter, were connected together and then the common outlet was trapped. Infected water draining from the instrument sterilizer might be drawn into the sterile water tank through a leaky or partially opened blow-off valve when the condensation of steam after sterilization produces a vacuum in the sterile water tank. Ordinarily this vacuum does not become great because air relief valves are provided. Instances are on record, however, where such valves have failed to work and the steel tanks have collapsed because of the resulting vacuum.

As the vertical distance between the waste pipe connections and the level of the water in the water sterilizer is rarely more than three feet, and may in some instances be but little more than one foot, it is evident that a very small vacuum would be sufficient to raise the infected waste water into the tank.

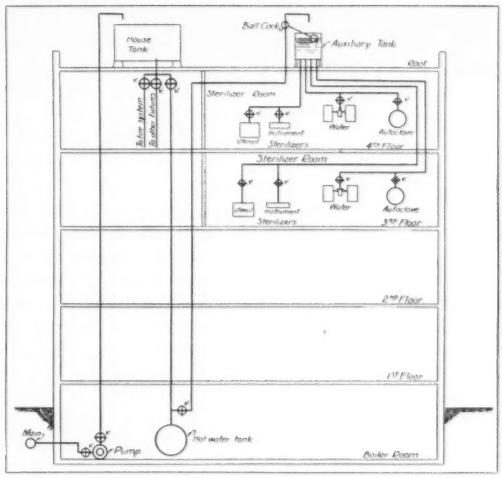


Fig. 5.—A safe way to connect the sterilizers shown in Fig. 1. Water cannot be siphoned out into other fixtures here

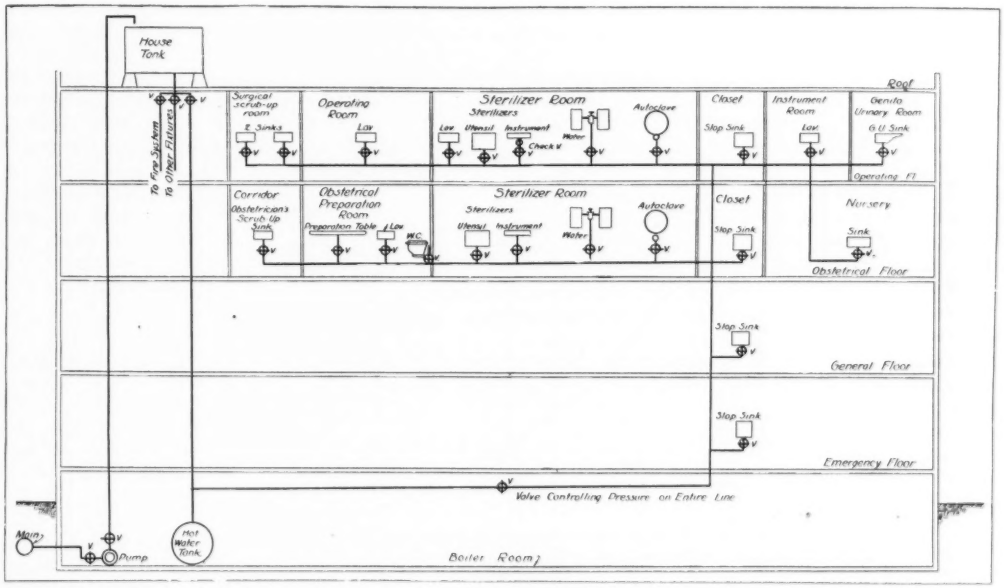


Fig. 6.—Connections to sterilizers and other fixtures in the hospital where the test, described in this article, was first made. Dye was placed in the utensil sterilizer on the operating floor and was recovered in the water drawn from all the fixtures and instruments shown in the diagram, except the two autoclaves and house tank

In one hospital, steps had been taken to prevent the accidental entry of unsterilized city water into the sterile water tank by placing a small bleeder pipe between two valves on the supply line. The discharge pipe from the cooling coil was directly connected to the blow-off pipe so that even in this instance one of the two avenues for the entry of unsterile water still remained.

The presence of infectious diseases in hospitals requires that greater care be exercised in preventing the spread of disease than in the average home where the people are normally well. In many hospitals there are hoppers, bedpan washers and water closets which are open to objection.

Fig. 7.—Left to right: Dr. Arnold H. Kegel, health commissioner of Chicago; Dr. F. W. Moeller, vice president, and George W. Miller, superintendent of Woodlawn Hospital, Chicago, inspecting installation of new sterilizer. This is represented by the diagram shown in Fig. 1

Even a Few Drops of Infected Water May Be Dangerous

Some bedpan washers have outlet valves to permit water to be held within them. It may frequently happen that enough water is held to submerge the water inlet. The same thing may happen in the others if a stoppage of the outlet by rags or paper occurs. These fixtures, as well as water closets, may contain the excreta of patients suffering from intestinal diseases. If the water inlet is submerged, a vacuum in the supply pipes may siphon infected water back through the valve controlling the flushing of the fixtures. Many valves are so constructed that the leakage backward would be relatively small in amount, but it must be borne in mind that even a few drops of water may contain a large number of dangerous living germs, capable of multiplying in a favorable environment. A very small amount of water siphoned into the water supply pipes from such a fixture may be just as disastrous in its results as though many gallons were drawn in.

It may seem unlikely that the circumstances will occur under which contamination of the drinking water or sterile water is possible. Were the possibilities great that these various circumstances would occur simultaneously, post-operative infections might be far greater in number than is at present the case.

It is well known that valves may leak and that human beings at times fail to close them tightly. Therefore there should be some mechanical protection against all possible entry of contamination into the drinking water

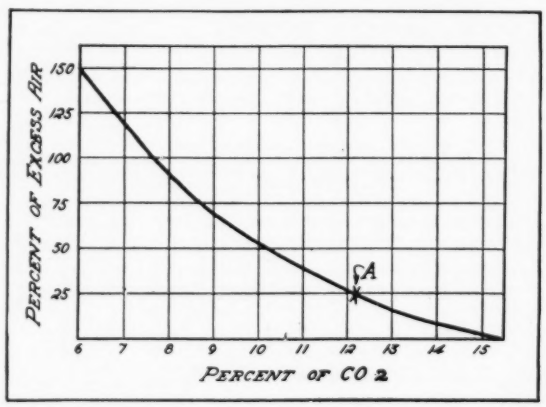
(Continued on Page 51)

CO_2 and the Oil Burner

By HAROLD L. ALT

IT IS an axiom that sufficient air must be supplied to permit combustion to proceed without hindrance if complete and rapid combustion is to be assured. In an ordinary gas burner, for instance, the flame never passes back through the burner into the pipe even though there is no oxygen in the pipe to support combustion. The pipe is filled with highly inflammable gas; in fact, the same gas which is burning just outside of the burner, but there is no oxygen to support combustion. Only when gas is mixed with or surrounded by air does it burn or explode. It is to this basic natural law that we owe the safety of artificial and natural gas for lighting and heating.

In the oil burner the oil does not really burn; it is the gas arising from the oil and mixing with the air in the combustion chamber which ignites and produces the so-called "oil fire." So it immediately becomes important to supply an oil burner with sufficient air—and the oxygen contained therein—to support full and free combustion.



It, however, is almost as important not to overdo the matter as it is to accomplish it to the necessary extent. This is because the incoming air is very cold (compared to the temperature of the oil flame) and all air passing through the combustion chamber is heated to a very high degree by the burning oil. At the same time the combustion process will pick up just so much oxygen and no more. All air over and above the actual quantity necessary for complete combustion is absorbing heat as it passes through the combustion chamber and is carrying a large part of this heat up the stack, where it is wasted.

One of the chief products of combustion produced by an oil flame is carbon dioxide, or, as it is termed chemically, CO_2.

Now CO_2 is produced to the extent of 15.3 per cent of the total volume of the flue gases when only sufficient air is supplied to exactly meet the requirements of complete combustion, but as the air quantity is increased over and above the ideal and theoretically perfect amount, a larger volume of flue gases is produced, but the quantity of CO_2 produced by combustion remains constant.

It is pretty hard in actual practice to produce theoretically perfect combustion without any excess air. In fact, if this is attempted, incomplete combustion is quite likely to result from time to time, owing to the fact that, as soon as the oil rate increases the slightest amount or the air supply decreases in the least degree under the theoretical requirement, incomplete combustion will result.

Incomplete combustion is much worse than excess air, producing not only a loss of B.t.u. from the fire but smoke, soot and other evils as well. So it is better to take the lesser of two evils and give a little excess air, keeping this excess as small as practical operating limits will permit. Usually it is considered good operation if the excess air does not exceed 25 per cent, although some engineers demand slightly less than this.

In Fig. 1 is shown a curve illustrating the relation between excess air and the percentage of CO_2 which will be obtained in the stack. On the left side of the chart are plotted the percentages of excess air from 0 to 150 per cent, while along the bottom of the chart are plotted the percentage of CO_2 for any percentage of excess air; for instance, with 100 per cent excess air it is necessary to find 100 per cent on the left hand side of the chart and proceed from this point toward the right until the curve is intersected.

Directly under this intersection along the bottom of the sheet is shown the percentage of CO_2 which will result from this condition, and following down to the bottom it will be seen that, in this example, the intersection is directly above a point about 6/10 the distance between 7 per cent and 8 per cent, which indicates that the CO_2 will be 7.6 per cent with 100 per cent air.

The point "A" marked on the curve is the condition which is usually considered as "good combustion," and it will be seen that this corresponds to 25 per cent excess air on the left hand scale and about 12.1 per cent CO_2 on the bottom scale.

By means of this chart either the excess air for a given CO_2 or the CO_2 for a given excess of air may be determined immediately for any set of conditions.

Ventilation *in the* Light of British Scientific Research

Arthur W. Bass

London, England

AS AN offset against the unpleasant fact that scientists in many countries are busily engaged in searching for more terrible poison gases for use in warfare, we have the satisfaction of knowing that an even greater body of eminent scientists is engaged in making investigations which will result in making the world more healthful. But there is a great difference between the two groups of investigators. The group that is concerned with the forces of destruction keeps the results of its investigations as secret as possible. But the group that is concerned with a higher standard of health and physical fitness, the prolongation of life, and an increase of human happiness, broadcasts the result of its labors to the far corners of the earth, and gladly gives the widest publicity possible to its beneficial discoveries. Scientists in the widely separated countries of the old and the new worlds willingly exchange ideas and pool their knowledge in order that mankind may benefit, and each investigator is ready to give credit where credit is due.

Readers of this journal who belong to the important allied professions of sanitary, heating, and ventilating engineering are fully aware of the importance to the community of a satisfactory supply of pure fresh air. But what of the general public? Does there exist among the people generally a proper idea of the extent to which their lives are dependent upon an adequate supply of fresh air? Is is realized that although it is possible to live for many days without solid food, and for many hours without water, yet if the lungs are deprived of air death ensues in the course of a few minutes? The ventilating engineer has not yet been given that important standing in professional life to which he is entitled in view of the very valuable service he is able to render, but he is rapidly coming into his own.

WHAT IS VENTILATION?

BRIEFLY described, ventilation is a movement of the air which brings about a change of air currents in a room or building.

Air movement, as distinct from air change, is more important than was thought to be the case formerly, but air movement alone is not sufficient; there must be air change, the vitiated being removed and replaced by a fresh supply which must be of a high degree of purity.

Until about twenty years ago, the amount of carbon dioxide, or carbonic acid (CO_2), as it is more generally termed, that was found to be present in a given volume of air served as an indication of its suitability or unsuitability for human beings. But it was then thought that the carbon dioxide (due mainly to the breathing of human beings) was a most dangerous impurity. It is now known that such is not the case, and that carbon dioxide in the air, even in quite large percentages, is far from being a potent cause of harm; only in places that are quite closed, or where carbon monoxide is present, is there any real danger. But the quantity of carbon dioxide present is still a reliable indication that other and very real sources of danger may be present; consequently a high percentage of CO_2 in the air generally indicates the presence of dangers that may arise from excessive heat and humidity, and from lack of air movement. To Professor Leonard Hill, F.R.S., is due the credit for having made researches which have given to the world much new and valuable data concerning ventilation and its effects upon human health and activity.

Professor Hill's investigations have earned for him the highest honor that British science has to offer, a Fellowship of the Royal Society, to which he was elected some years ago; he also holds a university degree in medicine. Mankind has benefited greatly as the result of the early misfortunes of Professor Hill. When a young man he found himself suffering from the early stages of tuberculosis of the lungs; he believed, however, that he could make a complete recovery only by living for a long time in the fresh open air. Thus began his investigations into the effect of the atmosphere upon the health of human beings. He is now more than sixty years of age, is a living picture of robust health, and is engaged in making researches at the National Institute for Medical Research, Hampstead, London; moreover, he is what the health insurance companies term "a first class risk."

Early in the present century Professor Hill made some very remarkable experiments at the London Hospital, this being the largest hospital in Britain, and the second largest in the world. Medical students were shut in a chamber that was absolutely air tight, until the air they were breathing contained 3½ per cent of CO_2 and only 16 per cent of oxygen. The percentage of oxygen present was so low that it would not support combustion; consequently the students failed to light a match, and they could not smoke a cigarette, but their bodily sensations gave no indication of the low percentage of oxygen.

AIR MOVEMENT IS BENEFICIAL: STILL AIR IS HARMFUL

PROFESSOR HILL directed attention to the remarkable fact that patients suffering from tuberculosis are sent to Switzerland, and to mountainous districts in other countries, in order that they may have every chance of making a complete recovery, yet in those extreme altitudes there is a lower percentage of oxygen present owing to the increased rarity of the atmosphere than is the case in a crowded assembly hall; consequently it is not the absence of oxygen nor the excess of CO_2 that is the harmful agency. The real harm to the human organism comes from HEAT STAGNATION, MICROBIC INFECTION, and DUST.

Heat stagnation, by lowering the human body's power of resistance, makes it much easier for microbic infection and dust to carry out their destructive onslaughts on human beings; consequently heat stagnation must be looked upon as a most dangerous enemy of health.

Is the breath exhaled by human beings poisonous? When we discharge breath from our lungs we discharge also a quantity of carbon dioxide and other impurities. Are these really harmful?

For many years the percentage of carbon dioxide in the air was considered to be a very reliable indication of the degree of its excellence—a high percentage of CO_2 being considered as a reliable indication that such air is dangerous. But recent experiments having proved that carbon dioxide in the air, even in large quantities, is harmless, other methods of judging whether the condition of the atmosphere is such as will be beneficial or harmful to health are now being made use of by ventilating engineers.

SOME INTERESTING AND VALUABLE EXPERIMENTS

AS THE result of extensive investigations, Professor Hill came to the conclusion that carbon dioxide in the air is not as harmful as it had generally been supposed to be. He therefore decided to carry out a number of daring and original experiments at the London Hospital. A number of medical students expressed their willingness to assist, and nearly twenty years ago the experiments were successfully carried through.

Although air in movement may not be ventilation, yet, even without air change, air movement alone may prove most beneficial to our well being.

An air tight glass cabinet was constructed at the hospital. Inside the cabinet was an electric fan which could be set in motion, or stopped, from the outside only. A number of students entered the cabinet. The fan was not in motion, and the exterior of the cabinet was kept warm so that loss of heat was prevented from the outside of the cabinet and from the bodies of the students who were inside. Almost at once the students showed signs of distress, which quickly became more acute so long as the air in the cabinet was allowed to remain stationary, but when the electric fan was set in motion, and the confined air greatly agitated, all the ill effects quickly disappeared. This furnished evidence that the envelope of air which surrounds the body will, if allowed to remain still, become saturated, so far as moisture and degree of heat are concerned, and this will effectively prevent loss of heat, but by setting the air in motion, the free loss of heat from the body is once more restored.

Even more conclusive proof was obtained by allowing the occupant of the cabinet to breathe outside air whilst his body was inside the cabinet and therefore surrounded by the confined, still, air. It is remarkable that the breathing of the outside fresh air gave no relief, but setting the confined air in motion did. The experiment was then tried in a reverse manner, the subject being outside of the cabinet, but he was compelled to breathe air from within it. This confined, vitiated air contained carbon dioxide to the extent of 130 parts in 10,000. In this case no ill effects were experienced. These experiments indicate that the air must be kept down to the correct temperature, not only for breathing purposes but also in order that the body may lose heat. This loss of heat allows the chemical and physical processes within the body to generate additional heat, and this tends to keep us healthy; it also beneficially stimulates the skin. It is also of considerable importance that the humidity of the air be kept relatively low.

The hand-operated fan, which has come down to us from the distant ages, proves that the ancients were fully aware of the beneficial effects of air in motion. Ancient Assyrian bas-reliefs and Egyptian sculptures show men and women being kept cool and free from discomfort by fans which were waved by their slaves.

Professor Hill has been able to furnish proof that carbon dioxide in crowded rooms and other places may rise to 0.5 per cent and that this has no physiological effect other than to deepen the breathing a little. In one instance, an old miner allowed himself to be kept in a chalk dugout having a cubic capacity of 900 cubic feet only; the small entrance was closely curtained. After two hours the carbon dioxide had not increased to more than 0.5 per cent. The old miner suffered no discomfort beyond having to breathe a little more deeply.

The air of a crowded, unventilated room is objectionable because it has an offensive smell, but that does not indicate poison. The offensive smell indicates lack of ventilation, which in turn means a lack of those movements in the air which proper ventilation always brings about. Lack of ventilation and air movement is responsible for that highly dangerous condition of the atmosphere indoors that is associated with stagnant air having a high temperature and a high percentage of moisture (humidity). When the temperature of saturated air reaches the temperature of the human body, the latter ceases to lose heat. If the temperature of the air exceeds that of the body, heat passes from the air to the body. No human being can long survive continued exposure to a saturated atmosphere having a higher temperature than that of the body.

Human beings can endure much higher temperatures when the air is dry than when it is humid. In dry air, the human body is kept cool because perspiration rapidly evaporates from its surface. But when the atmosphere is laden with moisture, there is only a relatively slight heat loss by evaporation, and under such conditions people often express their discomfort by saying "it is a muggy day."

In America the drier atmosphere allows a higher temperature to be more easily borne than is the case in Britain.

Professor Hill and his co-workers at the National Institute for Medical Research have been able to give us much very valuable information concerning the effect the temperature, humidity, change and movement of the air have upon the health and well being of the various sections of the community.

THE EFFECT OF THE ATMOSPHERE UPON WORKERS

IT HAS now been established that in factories, workshops, workrooms and other places where there is a temperature much higher than 70 degrees F. with a relatively high humidity and poor ventilation, the resistance of the workers to diseases is lowered considerably. They suffer from lassitude, fatigue, anaemia, and a low state of health generally. In some cases, degenerative diseases, or such slow and insidious health troubles as muscular rheumatism, hardening of the arteries, and skin troubles may result, and the victims are eventually compelled to give up their employment.

When the body perspires, the loss of heat is quickened, but should the air be heavily charged with moisture which has a temperature about equal to that of the body, there may be no loss of heat whatever. Under such circumstances the internal temperature may rise rapidly and the most serious consequences may ensue.

Recent investigations connected with ventilation have revealed the following interesting facts: Men, who were urged to do their utmost, accomplished 28 per cent less work per day in an atmosphere of 86 degrees F. with 80 per cent humidity than they did in a temperature of 68 degrees F. with 50 per cent humidity. In a temperature of over 90 degrees F., and high humidity, they felt dizziness, with physical weakness, nausea, and headache.

Investigations have furnished us with the knowledge that a human being cannot live for more than a few hours in a saturated atmosphere having a temperature of 110 degrees. The atmosphere is said to be saturated when it can carry no more moisture, or, in other words, when it has 100 per cent humidity.

Excessive heat kills quickly. Every summer "heat waves" cause the death of a number of persons. A few die from sunstroke, but the greater number die from heatstroke.

Exposure to a heated atmosphere having a high humidity always causes a great reduction in the physical and mental output of human beings. In the Sopron-Brennberg mines of Hungary, men practically naked, work for four hours a day only, and during that short time they go out at intervals in order that they may breathe some fresh air, but they get prematurely old, and many suffer from heart disease.

Concerning accidents in factories, a minimum number occur during moderately warm weather. The number increases during hot weather, but the greatest number occur when the weather is very cold.

The Institute's researches connected with ventilation have extended to all sections of the nation, but especially to manual workers, and to children at school. Attention has been directed to the efficiency of open window ventilation when properly arranged so that there is no possibility of injurious draughts. For extensive buildings, Professor Hill is not adverse to mechanical ventilation, with proper conditioning of the air by screening, washing, and other treatment, but he observes that many mechanical systems of ventilation are a failure because the quantity of air delivered into the various rooms and other places is quite insufficient for the purpose it is intended to serve, that purpose being the prevention of heat stagnation around the bodies of the occupants.

This very important matter should not be lost sight of by ventilating engineers. The amount of air necessary to ventilate a room is furnished by passing the greatest quantity possible through it in such a manner that a draught will not be felt.

It will be seen that modern investigations have proved that there may be defective ventilation even when there is an abundant supply of oxygen and no excess of carbon dioxide.

If the quantity of oxygen required by the human body is divided into five parts, four-fifths are required for bodily heat, and the other fifth for work. A person who does not suffer from disease of the heart, and is in an otherwise healthy condition, may take no harm if for a time he breathes an atmosphere containing no more than twelve per cent of oxygen.

Oxygen and its relation to ventilation, carbon dioxide in present practice as an indication of harmful air conditions, the relation of ventilation to harmful trades, pollution of the air by smoke and other phases of ventilation will be discussed, from the British point of view, in the second half of this article which will appear in an early issue.

What is Harmful Air?

A discussion of the preceding article by

Samuel A. Lewis

THE ARTICLE, the first part of which appears in this issue entitled "Ventilation in the Light of British Scientific Research," is in general a discussion of the work of some years ago by Dr. Leonard Hill.

There is, of course, nothing new in the statements about carbon dioxide, though repetition of the explanation concerning this valuable index of air contamination does no harm.

The remarks about the physiological effect of living in the open air for tuberculosis patients, and ascribing the benefit to something else than oxygen content of the air, are interesting. Twenty years ago, about the time the first cabinet tests were made, the mysterious element in outside air which cured tuberculosis had not been identified, and perhaps was not even suspected.

Now it is fairly well agreed that the tuberculosis cures as well as the rickets cures are due to unfiltered sunshine, and it is recognized that ordinary glass is impervious to these healing and invisible rays.

All there is to know about the effect of sunshine on an animal has by no means been discovered.

Does Sun-deprivation Pave the Way for Infectious Diseases?

I go summers, to Northern Wisconsin, in a very cold zone, away from the big lakes. The winters up there are exceedingly severe. The country people who stay there year in and year out, do not do very much in winter but try to keep warm. They get very short daylight periods, stay in bed late and retire early. They do not, like the Eskimos, get much fat or liver or whatever it is that seems to compensate to the Eskimo for sun-deprivation.

When I go North each spring, I hear much of sickness which occurred during the winter; smallpox, scarlet fever and kindred ailments seem to have been rampant.

This gives me to think that sun-deprivation, cod liver oil deprivation, as well as fresh air deprivation may be the cause of the seemingly low resistance to infection of these Wisconsin country people.

As I understand it, if all the carbon dioxide suddenly were to be removed from the air and we were to cease to give it off, we would die quickly, since the nerve centers which control our involuntary breathing are said to be sensitive to the carbon dioxide content of our lungs, a slight increase of this in the residual air which is always present in our lungs causing an involuntary increase in the rate of respiration.

So far as I know, in the last two decades, about all the progress which has been made in finding out what the specific poisonous or harmful substance in air which has been breathed and rebreathed until it smells like a delayed

(Continued on Page 86)

Here's the remodeling idea carried right into the business itself. This old home serves admirably as a store and office building

The Sales Manager Studies the Factor of

Personality

—and finds it a potent one in business building

ONE of the committee reports of the National Distribution Conference, which was held in Washington two years ago, said: "Channels of distribution have developed as they exist now because in general they furnish the most economical and expeditious methods of getting goods from producers into the hands of consumers."

In a book on economics, published just a few years ago, it was said: "Clearly, the most important link in the chain which binds production and consumption is the retailer, for it is he that must anticipate the wants of the consumer, provide beforehand for supplying these wants, and have the goods ready in convenient form for the consumer when they are demanded."

I'm not lugging in these highly learned statements concerning the economics of distribution just to show that I spend my leisure time getting acquainted with three-syllable ideas. But it seemed to me that any study of sales work ought to be based upon some knowledge of the laws which govern the business world, even though we often lose sight of them. And, in a way, I had to be sold on the idea of the necessity for the retailer. As that report quoted above said later on: "In general the functions (of the retailer) are necessary and even should distribution be effected under single ownership, the functions would still have to be performed." In other words, you have to get your goods to the consumer, and it costs money to get that work done.

Having decided to use the "channels of distribution . . . as they exist" it was up to me to select the field through which the new product was to be marketed. I soon found that when the committee said that the present channels furnish the most economical and expeditious methods "in general," that they meant "in general." It took me a little while to recognize the fact that I was never going to find perfection in retail outlets in any field.

I was going to have to compromise. My task was really not to seek perfection, but the highest degree of

efficiency possible. We needed retail outlets where mechanical knowledge and sales ability—not an especially easy combination to find—were present. It has interested me to write down the stories of some of the retail outlets in the field which we finally selected as offering us the greatest opportunity for satisfactory consumer contacts.

PERSONALITY AS A FACTOR

SOMETIMES the most essential qualities in a business, especially if it is a partnership with outstanding men controlling it, are the personalities of its owners. For, especially in a medium-sized city where it is possible to become well acquainted with many of those with whom you are doing business, these personalities can be made to produce good profitable business for the firms fortunate enough to have men with pleasing personalities.

Such is the case with the firm of Buckingham-Routh, Inc., New Haven, Conn., one of the largest and most successful plumbing, heating, and sheet metal firms in the section. For the heads of the company are A. H. Buckingham, president, T. L. Routh, treasurer, and A. R. Thorp, secretary, and each has his individual weight to add when there is business to be gotten, although of late years Mr. Thorp, the youngest man of the trio, has taken over more and more responsibility.

Many people had told us that the Buckingham-Routh place was one of the most attractive in New Haven, that the officers of the firm were active in civic and master plumbers' association affairs, that the company had done a very good business in oil burner installations, and that it got many of the larger plumbing and heating contracts, especially when the owners were willing to pay for a quality job. Officials of the firm, asked the reasons for their success, answered with characteristic modesty: "There is no especial reason why we do a fairly good business." But they do the business—and I wanted to know how.

In fact, to get to the bottom of the question and find out why Buckingham-Routh, Inc., is what it is today it is necessary to talk to outsiders who know the history of the firm. They will tell you it is because since 1894 the firm has been known to do nothing but the best kind of work its members know how to do, at prices that are fair and yet return the firm a decent profit, and that business relations with the company are always such that its customers think of Buckingham-Routh first when they have other work to do. And, in addition to doing good work at a fair price, the members of the firm have made themselves so well liked by architects and general contractors as well as the general public, that, everything else being even, those who have work to give are likely to turn automatically to this firm.

The company, as we have stated, was organized in 1894, the officers buying out the New Haven Steam Heating Co. This was a good company, and so the new firm started out with the reputation of its predecessors as an aid. The men realized this reputation was its greatest asset and determined to build it up until everyone possible would know of the firm. Ballyhoo methods were not desired, not being applicable either to the personalities of the men behind the company or to the New England city in which they were doing business. So the motto of the company became, "A Satisfied Customer is the Best Advertisement." They brought new life to this trite slogan in all business dealings by giving it practical meaning for the customer.

YOU ARE BEST SERVED

When Served By a Firm Whose Reputation Assures Best Service

Faithful and efficient service is the foundation upon which the house of The Buckingham, Routh Company was built. The continuance of this policy is the avowed determination of those now at the head of this company which was founded **eighty-five years ago.** You are cordially invited to visit

Since now you know the location, drop in and get acquainted
(Ample parking space)

Whether heating with coal or oil, a visit to our showroom will suggest comforts and conveniences which you have never before enjoyed, and will SAVE YOU MONEY.

THE BUCKINGHAM, ROUTH CO.
MODERN EQUIPMENT CO., Inc.

Service, location, products—all covered in this one readable ad

EXTENDING THE BUSINESS

THERE IS no doubt that a satisfied customer is a good advertisement, but first one must have customers. So the founders of the firm first looked over the list of the customers that they had naturally secured when they purchased the "good will" part of the old business. And next they made it a point to get as well acquainted, in a business way, with those customers as it was possible to do, retaining their individual and firm dignity. Next, they set out to broaden the scope of the possibilities by getting acquainted with other people who might be of value to the firm. The people they selected included architects, general contractors, wholesalers of plumbing and heating supplies, mill owners, engineers of industrial plants—in short, anyone who might be likely to have influence when a contract for plumbing, heating, or sheet metal work was to be let. Satisfied customers will not carry the whole burden of business growth.

Here is where personality was brought into play. Acquaintanceship with members of the Buckingham-Routh firm is likely to develop into friendship, if these members desire this to happen. And it was not long before these friends began to think first of Buckingham-Routh when plumbing, heating, or sheet metal work was mentioned. Of course, by "not long," we do not mean days or weeks, or even months. For it is a slow process, this building up of good will, and it requires unceasing attention to the work at hand.

Eventually, when this acquaintanceship bore fruit in jobs secured, the second phase of the work of building up good will began. This was to do the best kind of work possible on any project undertaken. The New England consciences of the firm members would not allow them to do anything else but good jobs, anyway, so it was natural for them to give this sort of service. It is axiomatic that good jobs at a fair price will bring repeat business, especially if the customers like the dealer personally, and this is what happened in the case of the New Haven masters.

Formerly the firm was located in an office building. It gave a certain amount of prestige, it was convenient when the men wanted to call upon general contractors and architects, and it was a dignified way to do business. But this meant that the shop must be widely separated from the offices, and also was undesirable because of the difficulty their customers had in finding parking space. So a few years ago, the decision was made to purchase an old dwelling house, on a lot 45x196 feet, at 64 Grove Street, which is just off one of the main avenues in New Haven, convenient to the business district, yet far enough away to provide plenty of parking space. In addition, on the rear of the lot was a well built brick stable, which formerly had living quarters for servants on the second floor, which would convert easily into a two-floor shop. Power machinery was installed in this, the first floor being adapted for plumbing and heating work and the second for a tin shop.

The building on the front proved comparatively easy to revamp. It was found possible to move a wall and enclose the former open stairway, thus converting it into a closed staircase and making it possible to use the upper story as an apartment. The first floor was redesigned, a large show window being put in the front, a large reception room being made out of the old parlor, with general and private offices in the rooms to the rear. Large, attractive signs were put up, a display of merchandise was put into the window to attract attention, and the business was established in its new home.

MERCHANDISING SPECIALTIES

THE firm has always merchandised, in the larger sense of the word. Until comparatively recently, however the merchandising consisted principally of selling Buckingham-Routh, Inc., its members, and its service. Naturally the masters tried to see that fixtures and material put in were of a good grade and of a type that would produce the firm a proper profit. However, the coal shortage a few years ago made the officers wonder if they were not missing a good bet in not merchandising an oil burner. They realized, too, that it would not be possible to sell these without a specific effort, just as they had followed a predetermined course in selling the company to its public.

So they formed the Modern Equipment Co., Inc., as a branch of the business, and hired a salesmanager to put over a coal saver, an electric refrigerator and an oil burner whose agencies the firm accepted. The sales manager, trained in advertising and selling, immediately started a series of newspaper advertisements and also compiled a list of home owners to whom direct mail literature on the three specialties was sent.

Business picked up, of course. People were interested in all three items, and it became necessary to build a sales organization to take care of the prospects. This was done, salesmen being employed on a drawing account and commission basis. The next logical step was time payments, as the salesmen began finding out that the prospects wanted to pay for these fixtures over a term of months. The advertising, the employment of salesmen, and the selling on time payments were all given a long enough trial to prove their worth.

However, Mr. Buckingham states, the combination in the case of his firm was only moderately successful. It is probable, he believes, that they tried to go ahead too fast, that they tried to merchandise in a big way before the proper organization, both for selling and for collection of accounts, had been built up. Some salesmen, employed on the drawing account basis, failed to prove their worth to the company. There was considerable difficulty in the collection of some of the deferred payment accounts. It may have been that personalities among the employes of the new department did not measure up to those of the owners. In any case, after a fair trial it was decided to suspend the active drive for specialty sales. Which was the better course than going on without going back and rectifying mistakes.

Mr. Buckingham does not condemn any of these ideas because they did not work out so well for his concern, however, knowing that there may have been a combination of circumstances that aided in making it hard to put them over in his case. The value of the advertising is still being shown today, he finds. Many people still remember the good "copy" on oil burners that was carried when the Modern Equipment Co., Inc., was active and still get in touch with the company when they want an oil burner or other auxiliary plumbing or heating equipment. This produces a fair amount of this sort of business at the present time, without any particular effort being made to secure it, and shows how the effect of advertising will persist, even after the schedule has been discontinued for some time.

Getting back to the concern's regular line of business, it is still doing some of the best work in New Haven, all of it taken at a price which will give the masters a fair profit. One of the latest is the telephone building, which consists of 12 stories and attic. Others include several Yale society buildings, many service stations, several apartment houses and sheet metal jobs have included one for $16,000, unusually large for this type of work.

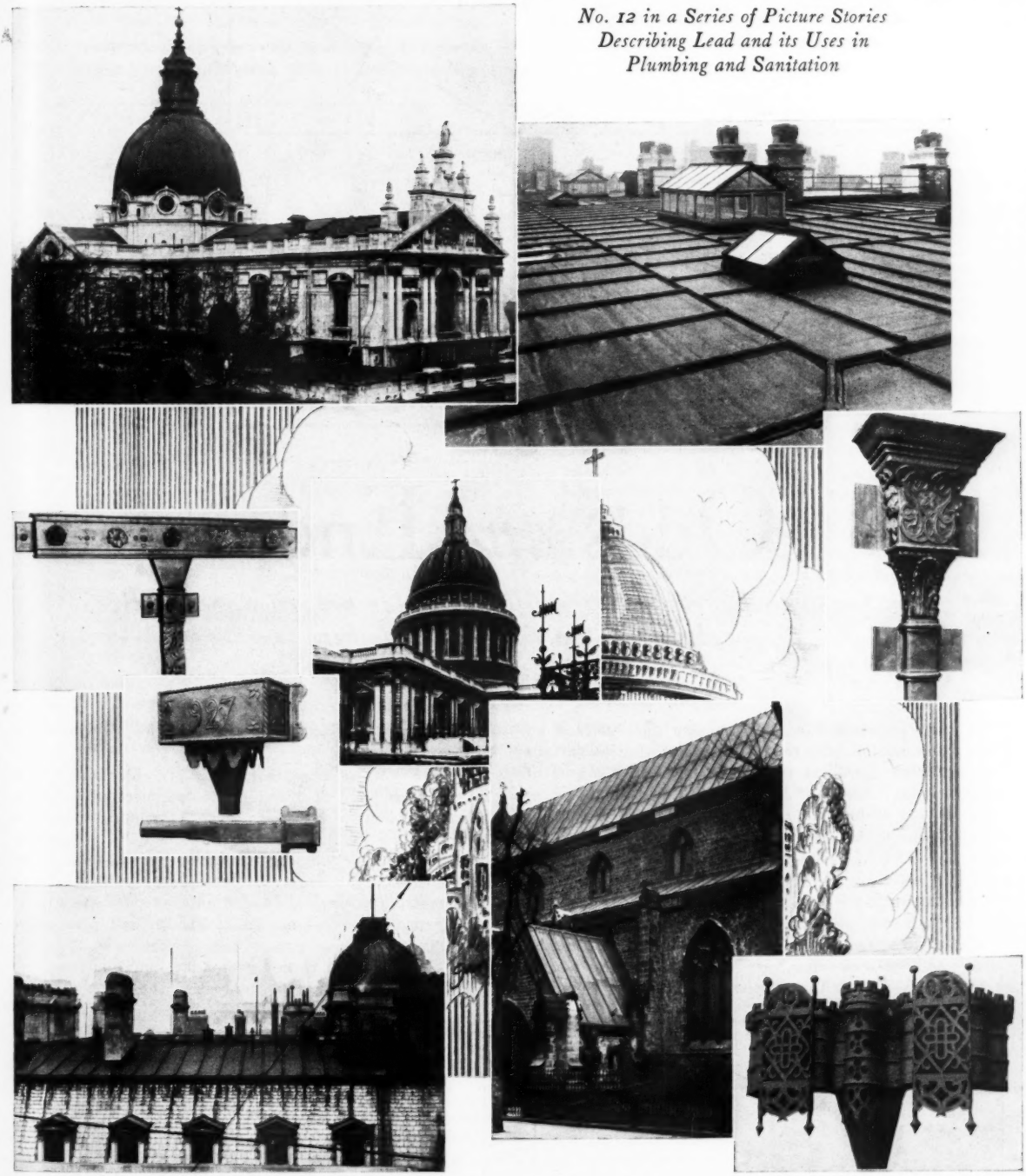
I have been through the scrap-book record of the campaign which the company conducted in connection with these specialties, and I am not at all surprised that they still find returns coming in. It was a consistent, well-planned and well-written campaign, and I believe that had it been conducted over the name of the company instead of under the new name they gave the specialties department, it would have been completely satisfactory to them. As it is, of course, the benefits are being felt and certainly the ground has been well prepared for another such effort.

All this is aside from the point, of course. We seldom enjoy perfectly satisfactory results—perhaps because we expect too much. But such retail outlets as are represented by Buckingham-Routh are desirable from the manufacturer's viewpoint. They are live, active, have the selling viewpoint, and a name for good work which can only come after years of good work. They mean satisfactory users of the manufacturer's product—which is the manufacturer's dream of paradise.

A. J. Maag, Milwaukee master plumber, gave a "fish fry" at his summer home on Lake Winnebago, recently. Among those of the plumbing trade who attended were: Jacob Schuh, Charles Pelunek, Joseph Wittig, S. V. Hanley and E. C. Henoch, all of Milwaukee.

LEAD — ITS STORY AND ITS USES

No. 12 in a Series of Picture Stories Describing Lead and its Uses in Plumbing and Sanitation



RAIN WATER HEADS AND ROOFS OF LEAD—One of the most interesting pictures in the above selection is the middle left of the page. It is a rain water head made of cast lead and bearing the date 1927. Rain water heads of elaborate design are usually regarded as belonging to a past century, but here is one that bears a recent date. Several types of rain water heads made of cast lead are shown on this page. The making of these heads is an art that has almost entirely passed away. Reminiscent of bygone days is the picture in the center of the page showing the dome of St. Paul's Cathedral which for many years has been protected by 70 tons of cast sheet lead. Another notable dome covered with lead is shown in the upper left, that of a famous church in England which also has many other decorative features of milled sheet lead. At the upper right is shown the roof of the Baltic Shipping and Commercial Exchange, London, England. There are 150 tons of lead on this roof. The lead protected buildings at the bottom are, left, government building, Whitehall, and right, the church of St. Stephen and Mary, Rochester Row, Westminster, London.

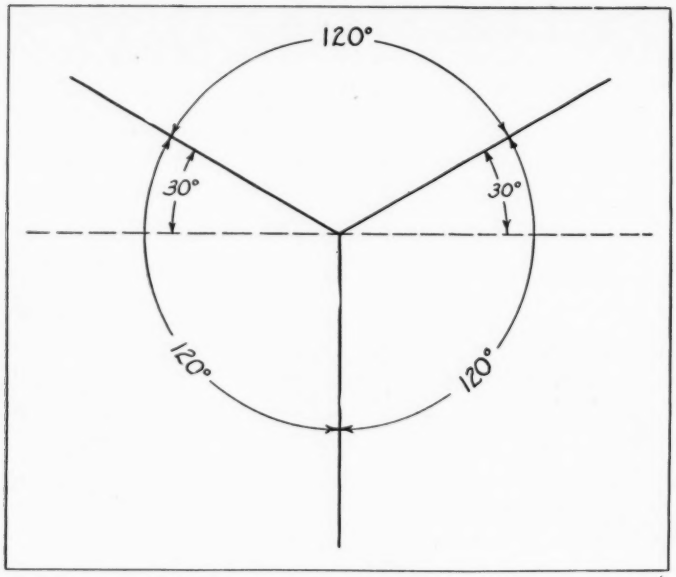


Fig. 1

Odds *and* Ends

Isometric drawing, cabinet perspective, regular projection, perspective, plumbing practice here and there

By R. M. STARBUCK

EVERY so often the Schoolmaster has to face an accumulation of correspondence relating to various different questions that come up in the course of his work, and instead of handling these problems separately, it has seemed an interesting thing to devote an occasional special article to their consideration.

What is Isometric Drawing?

Quite some time ago one of the most active members of the Schoolmaster's Class, who is too modest to let us use his name, sent in an inquiry that ought to be interesting to many. This friend is "R. L. M.," of Buffalo, N. Y. After commenting very favorably on the benefit he had received from the articles appearing in "Domestic Engineering" on isometric drawing, he continues as follows:

"I have noticed repeatedly that Mr. Starbuck states that a certain kind of drawing is a 'perspective' drawing, and I am wondering whether he is right on that or whether I am right. The drawing he calls perspective I would call either 'angular projection,' or, as some books call it, 'cabinet projection' or 'oblique projection.'

"Isometric drawings are based on axes shown in Fig. 1; angular projections as shown in Fig. 2, and perspective as in Fig. 3.

"In isometric the three axes make equal angles with each other, two being 30 degrees with the horizontal.

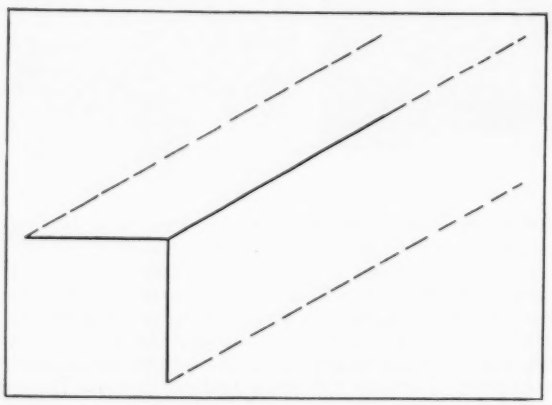


Fig. 2

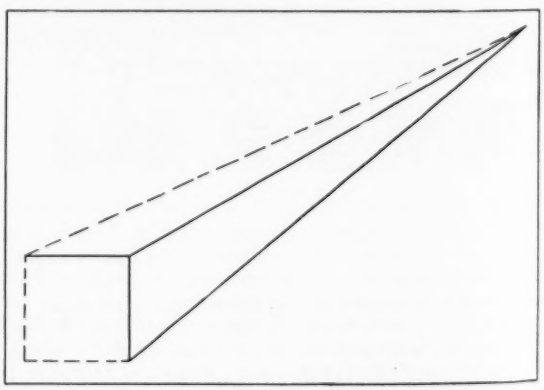


Fig. 3

"In angular projection the oblique line may be at 30, 45 or 60 degrees with the horizontal, although 30 degrees is preferable.

"In perspective, according to my idea, the effect of distance is gained, the lines converging to a point."

Isometric Perspective and Mechanical Perspective

We are very glad indeed to get this interesting communication. It shows a clear knowledge of the subject, and is the basis of a discussion that should be of value to a large number who are interested in the subject of plumbing drawing.

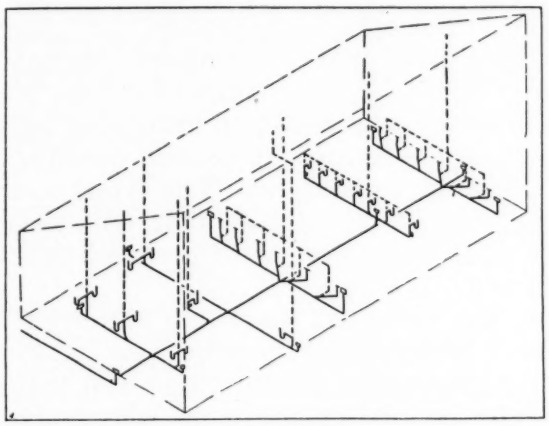


Fig. 4

The illustrations and the comments on the three types of drawing are fine, and make the difference between the three very clear.

The point of chief interest concerns Fig. 2, which "R. L. M." calls angular or oblique projection. We think that if he will refer back, he will find that we have referred to this type of drawing as 'mechanical perspective,' but not as 'perspective.' There is a great difference between the two terms. As he remarks, and illustrates in Fig. 3, in a perspective drawing the lines converge at some distant point, whereas in what we call 'mechanical perspective,' these lines run parallel, and do not converge, no matter how far extended. A good illustration of the difference is seen in considering a railroad

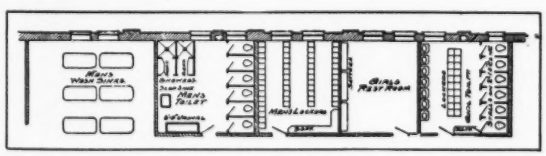


Fig. 5

track. We know that as an actual fact, the rails do not converge, no matter how far they may extend, but the human eye sees that they do come together. The eye tells the story in true perspective, while the mechanical perspective or oblique projection tells the story in a more truthful way.

We think that both "R. L. M." and we are correct. It is simply one of those cases where several different terms are used to describe the same thing.

Straight perspective is not often used in the mechanical trades, but is put to more artistic use.

One should understand that while isometric has long been used, it has actually come into use in plumbing and heating work only within a comparatively few years. There is not much that can be obtained in books that bears on the subject and we really think that the information that "Domestic Engineering" has provided in its numerous articles on the subject of isometric drawing is more extensive and comprehensive than has been published elsewhere.

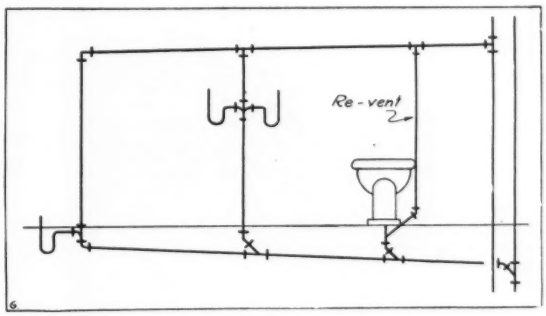


Fig. 6

Use Type of Drawing Best Suited to Work

When we first began writing on the subject of isometric, we rather held to the position that any modified type of isometric drawing, such as mechanical perspective, was incapable of being used to the same advantage as straight isometric. We are very much inclined to give up this position, and to take the ground that whatsoever type of drawing is best qualified to show the work most clearly, that is the drawing to make. In the Schoolmaster work, we have repeatedly seen that certain members of the Class seemed to do better work by using mechanical perspective than isometric. On the other hand, others have taken up isometric with great ease.

We recently received a very creditable piece of work in isometric from Joseph M. Canavan, Los Angeles, Calif., which we take pleasure in showing in Fig. 4. The drawing is based on the floor plan in Fig. 5, which shows two large toilet rooms for men and girls, and a washroom for men.

The drawing is well done, and shows the work very clearly. The view that the drawing shows is obtained by looking upon the floor plan from the lower left hand corner. The maker of the drawing alludes to this point or corner of the floor plan as the "pivot," which we think is a very apt term.

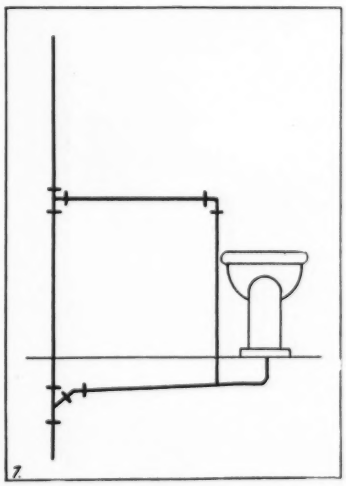


Fig. 7

Mechanical Perspective Used on Refrigeration Plant Layouts

Recently we talked with the layout man of one of our largest makers of automatic refrigeration. This work often calls for extensive and complicated piping layouts for large plants, and we found that they use

-"and the enamel is Acid Resisting-

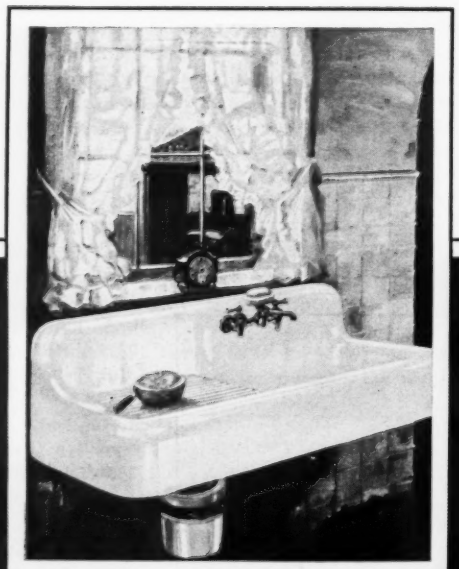
Your ambition for your business is two-fold—to produce profits and to build prestige. Except a reputation for good workmanship and for honest dealing, nothing offers greater opportunities for accomplishing this ambition than your selling high-grade fixtures of proven quality.

Take sinks, for instance. The "Standard" "Three 8's" is the sink which will most satisfy your customers with greatest profit to yourself.

You can easily sell them the "Three 8's," the sink which has brought new charm and convenience to the kitchen. Tell them about the beauty of the new Mastercraft faucet, about the superior labor-saving garbage container. Above all, tell them—

"The enamel is "Acid-Resisting."

Once they thoroughly understand Acid-Resisting Enamel—the enamel which is not harmed by acids found in the home, including tile-setters' acids, or by cleansers or minerals in the water—the enamel so easy to clean and which keeps its glistening beauty—your customers will quickly realize the superiority of the "Three 8's" Sink and will as quickly buy.



"Standard"
PLUMBING FIXTURES

the fittings have Chromard Finish"

And sales equally as profitable are made with "Standard" Mastercraft fittings, fittings for the new "Standard" Lavatories — for lavatories, enameled or vitreous china, of the more staple design—for baths—and for kitchen sinks.

These quality fittings offer unlimited opportunities for new and replacement brass goods sales. Their distinctive design for the styled lavatories, their handsome lines for other lavatories, for bath and for sinks, are beautiful and assure your customers permanent and satisfactory installations. These advantages of beauty and design alone will bring you profitable sales.

"These fittings have Chromard Finish"—

With this explanation you still have an additional and final argument which gives your customers absolute assurance of permanent beauty of finish. Chromard will not tarnish or corrode, has a lasting platinum-like lustre, and is easy to clean.

Here again, in these "Standard" Mastercraft fittings, is assurance of satisfied customers, with sound profits and reputation for you.

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"Standard" PLUMBING FIXTURES

on this work mechanical perspective entirely, and moreover, they use these drawings as working drawings, not alone to give a picture of the installation.

Referring for a moment to Fig. 4, we note the cleanouts at the two ends of the two lines of water closets. It seems to us that the vertical rise from the horizontal is too great, and that the rise should be about the same as the rise on the water closet branches. The point is that these cleanouts come farther out from the wall than the water closet openings, whereas the drawing appears to show the cleanouts in the same line. A study of this inaccuracy will be helpful.

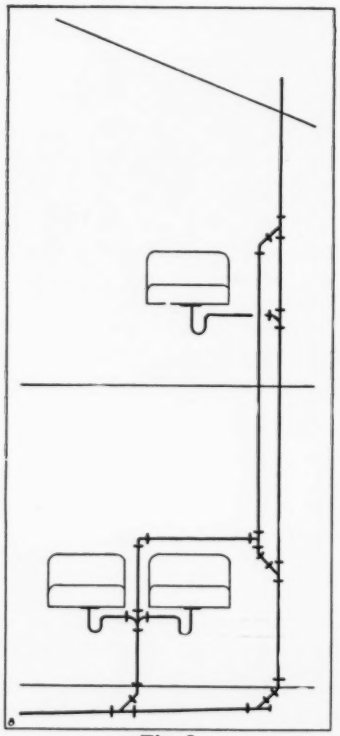

Fig. 8

Articles on Vents

The letter from "R. L. M.," mentioned at the opening of this article, also contained the following: "Why not have a good article on vents and their explanation, such as what constitutes a circuit, loop, continuous, wet vent, back vent, re-vent, etc., etc., with comparisons? The subject of vents seems to be so elusive; even writers seem to disagree entirely as to what certain vents should be called. In reading books by Starbuck, Dibble, Audel, Cosgrove, etc., there seem to be great differences between them, and an article on the subject would help to clean up the situation."

Three articles exactly along this very line, written by the Schoolmaster, were published in "Domestic Engineering" last fall, and we have an interesting letter before us now, which fits nicely into this same picture.

A Description of the "Provost" Vent

It is from a good friend of this work, A. C. Bellingrath, Decatur, Ga. We are unable to give the letter in full, but quote from it as follows:

"I was very much interested in the article, 'Confusion of Venting Terms,' appearing in your issue of October 29, 1927. I see that your Mr. Starbuck has gone very thoroughly into the matter, and explained all kinds of vents but one. When we, that is, the plumbers of Atlanta, Ga., vented a lead bend from a water closet, we called it a 'provost' vent, the word provost being taken from provost guard, whose duty it was to arrest soldiers who were guilty of infringement of law or order. The provost vent was supposed to arrest siphonic action, if it existed, when a water closet on an upper floor was discharged."

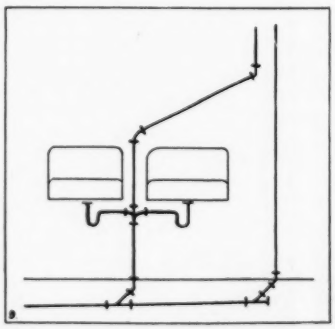

Fig. 9

We had thought until now, that somewhere along the way we had heard of every kind of vent that had ever been mentioned, but certainly we have never before heard of a "provost" vent. It is interesting, and we thank Mr. Bellingrath for mentioning it. His letter continues as follows:

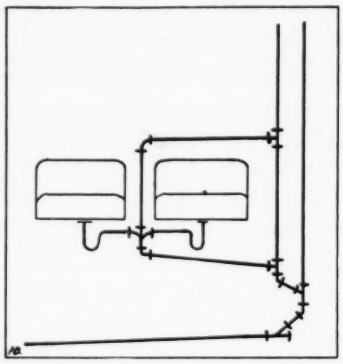

Fig. 10

"Now in regard to Fig. 11 of the Oct. 29 article, we would not require the vent called re-vent, especially if the entire loop was 4-inch, but we would use a sanitary tee instead of the Y shown entering the soil stack. Neither would we require the re-vent pipe line shown in Fig. 9, but would require a sanitary tee in place of a Y entering the stack, and limiting the distance from closet to stack to 2 feet.

"Also, Fig. 8 would not be permitted in Atlanta, the reason being that if the Y at the foot of the stack, or the waste between the Y and the Y for the waste from the two fixtures on the first floor should stop up, the discharge from the fixtures above would fill the stack

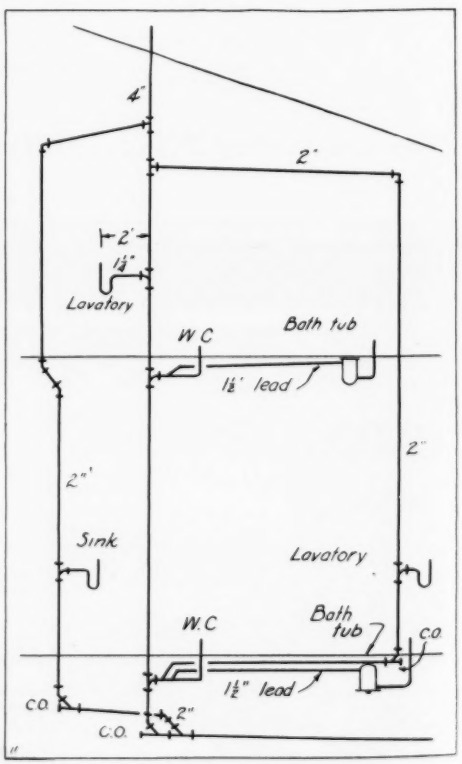

Fig. 11

A scene like the one pictured above never occurs when the radiators are equipped with

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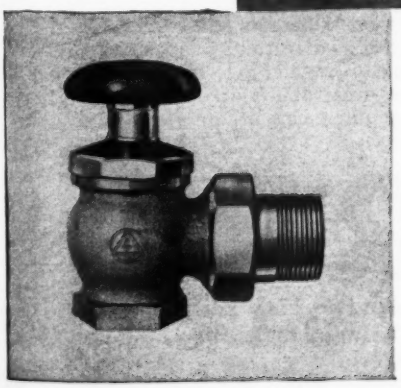

ARCO Packless Valves are made in angle corner and globe patterns, of wheel or lever handle construction, for steam, water, vapor or vacuum installations.

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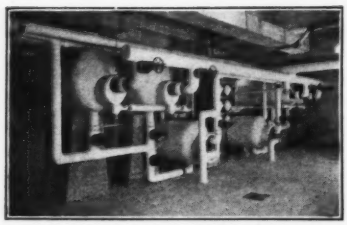

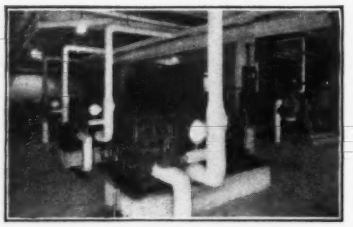

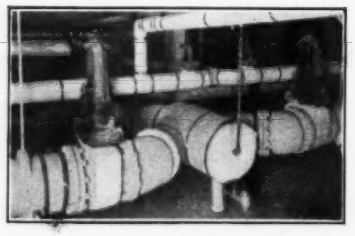

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and flow through the vent from the two fixtures and convert the vent pipe into a forced waste pipe."

The Fig. 11 alluded to is our present Fig. 6, and Figs. 9 and 8 are respectively our Figs. 7 and 8. We agree with the remarks concerning the work shown in Fig. 6. There is no question whatever that if the entire loop were 4-inch, there would be no need of a re-vent, and our opinion is that if the unit vent were 2-inch, the water closet would be safeguarded. It does not seem necessary to go to 4-inch on this loop vent, for that is the type of vent that this is. We also agree that in both Figs. 6 and 7, the venting is better served by using a sanitary tee than as we show it, for the use of the Y branch and bend brings the waste opening further down on the stack.

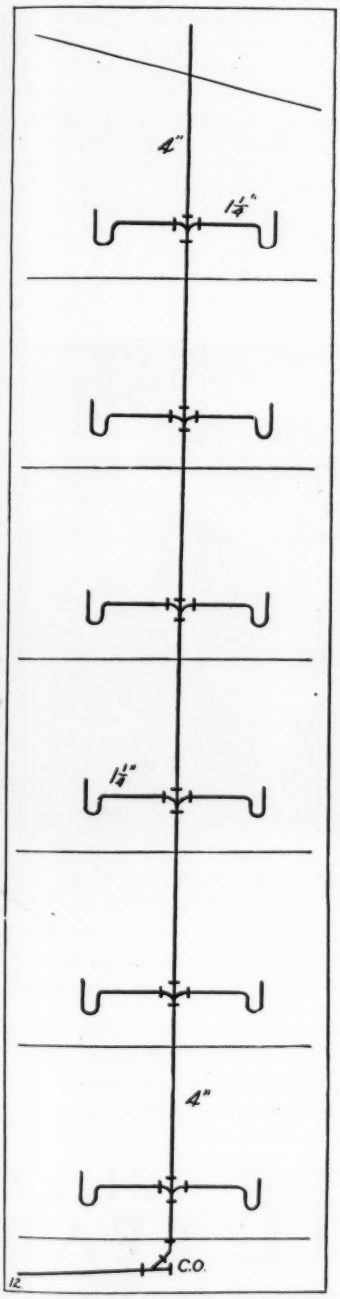


Fig. 12

We are also in agreement with what is said concerning the work shown in our Fig. 8. In the event of a stoppage such as mentioned, there would certainly be danger of waste backing up into the foot of the main vent, and flowing off through the connection for the two lower lavatories.

This condition might be corrected in several different ways, two of which are shown in Figs. 9 and 10. In using Fig. 9, if a stoppage should occur at the point mentioned, the sewage would simply back up in the waste stack, until it overflowed through the waste opening of the first fixture discharging into it. If Fig. 10 were used, such a stoppage would back the waste up into the two lavatories, and this would give sufficient warning that there was trouble. We are glad to have such a thing as this pointed out, for the connection looks innocent enough at first glance, but it must be conceded that it is one of those instances where the situation that exists may remain concealed for some time, but which will eventually lead to still greater trouble.

The letter that we have quoted from ends with this statement: "You know, the longer I live and the more I read and study about plumbing, the more convinced I am of the foolish wastefulness of plumbers in years gone by. How many pounds of lead pipe and how many feet of iron pipe we absolutely threw away, trying to make a job sanitary; and some of the measures we employed to make plumbing safe were the very things to help make it unsafe."

No doubt this is very true, indeed our own personal opinion is in agreement, but it seems to us that most of us have been honest in what we have done in the past, as the science of plumbing has progressed through the various stages. It really does seem however, as if we had come to a day when those who have the interest of the trade at heart, are more willing to stand up and face things, and far less willing to continue doing things in a certain way just because that was the way those things always had been done. As a matter of fact, there is more straight thinking on these things than there used to be, and perhaps more courage, and that comes mighty near saying that more real honesty is being applied.

A Message from South Carolina

Right along these very lines is another communication received some time back. This contribution comes from another Southerner, C. L. Deadwyler, plumbing inspector of Greenville, S. C. His letter in part, is as follows:

"It is quite interesting to read and compare through your columns, the many different requirements we find throughout the country, and it is our observation that a lot of them must be wrong, as we do not feel that so many different ideas cou'd all be right. I really feel that the general public has had a wrong impression of the plumbing industry, and perhaps justly, on account of the apparent desire to put into a plumbing job all the material possible, in order to create more work, and thereby create greater profits.

"In my humble estimation, as soon as the plumbing industry gets to realize the necessity of just using the necessary material to insure proper drainage and sanitation, it will be a great stride forward."

There is no doubt that here and there could be found those who were willing to see the plumbing system cluttered up with needless complications, in order that the "job" might run to larger amount than it otherwise would. But we are sure that this has been the rare exception. Nevertheless, it is no doubt true that the exception has been the cause of a wrong impression concerning the trade at large.

Condemned the Hoover Code

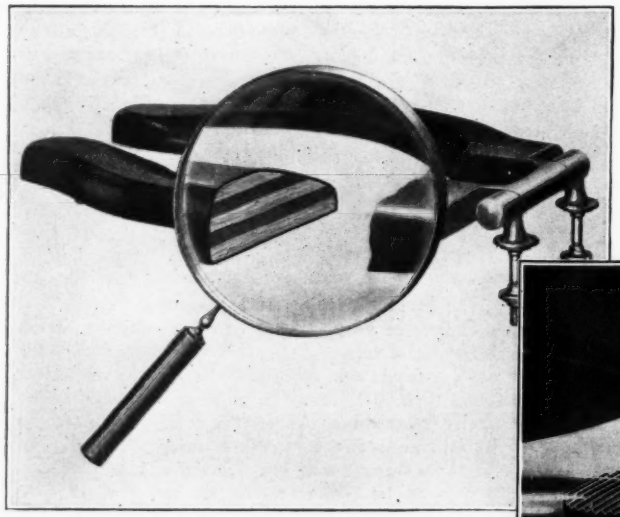
Some months ago a plumbing inspector called on the writer for the purpose of denouncing the favor shown the Hoover Code in his writings for "Domestic Engineering." The inspector's point was that the simplifying of the plumbing system would be the cause of largely reducing the amount of work to be handled. A narrow mind will certainly take this view, but a broader mind will know that only by honest dealing can actual and final success come. If the world had been governed by this type of thought we would still be lighting our fires by rubbing two pieces of wood together.

As a matter of fact, the Hoover Code that this man takes exception to is the finest example we have to prove that the great body of plumbers belong to the broad minded class. To see this, all we have to do is to note the enthusiasm and satisfaction with which this code has been adopted as state law by a number of our states, and

(Continued on Page 60)

Your Customer Pays No More

to get these important features



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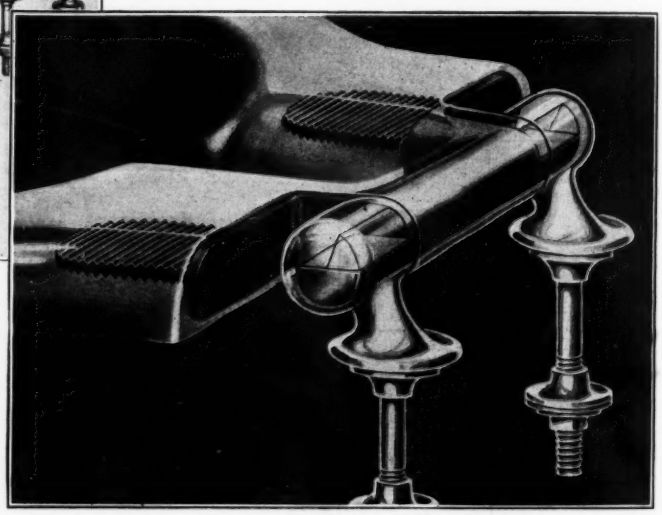

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Incinerators

By JOHN H. D. BLANKE

SEVERAL weeks ago the writer saw the following question in a leaflet prepared by Thomas Treganowan: "Why does not the National Association of Master Plumbers take up such matters,—the introduction of new articles which relate to the welfare of the public and which make for more healthful conditions and more sanitary surroundings? The incinerator is in the plumbers' field. Master plumbers,—get busy and enlarge your field by boosting the incinerator."

This was timely and to the point. It urged the writer to prepare an article especially addressed to master plumbers and heating contractors, and dealing with incineration in general and with a description of the various types and designs of larger and smaller domestic incinerators in particular.

As an introduction, it might be said here that the incinerator is a furnace or oven for incinerating, or burning, substances such as refuse and garbage. In England all waste except sewage is called refuse, but in America all waste except garbage and ashes is called refuse when referring to municipal incineration or destruction. Generally garbage consists of discarded animal or vegetable matter from kitchens, markets, stores, etc., including also other wastes such as ashes, paper, tins, rags and any other so-called worthless matter. The scientific and economical disposal of the garbage and refuse of cities in general and of individual buildings and places is a vital problem which is of special interest to the domestic engineer insofar as he can educate and win his clients to the installation of a suitable type of incinerator.

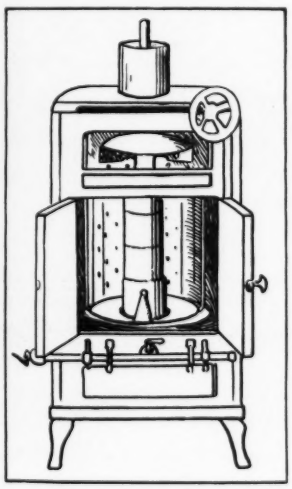


Fig. 2

WHERE INCINERATORS ARE NEEDED

THE DISPOSAL of garbage and other refuse in some kind of an incinerator, instead of disposing of it in the old-fashioned manner of filling garbage cans, barrels or boxes or dumping it in the alley, adds considerably to public and private sanitation, and to convenience in the home or wherever refuse accumulates. It promotes economy in costs of refuse disposal by utilizing the fuel value of the refuse, and so is valued by apartment owners and others who install incinerating equipment. There is an untold number of places where some type of incinerator can be installed to advantage. The following list is merely suggestive of the many private, business, public or professional places where an incinerator can render a valuable service in scientific refuse disposal:

Residences, apartment buildings, hospitals, clubs, warehouses, railroad yards, cemeteries, poultry dressing shops, paint shops, dormitories, municipal buildings, laboratories, sanitariums, hotels, restaurants, department stores, industrial plants, parks and camps, butcher shops, banks, schools, telephone exchanges, tuberculosis hospitals, dentist offices, buildings using automatic oil or gas heaters.

This list could be multiplied many times, which indicates the vastness of the incineration field.

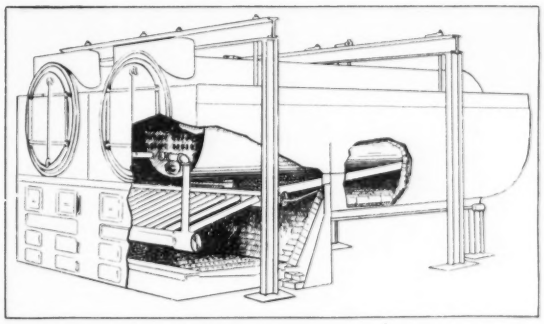


Fig. 1

MUNICIPAL INCINERATION

THE GREATEST share of the refuse disposal problem must be solved by the cities. It is said that New York alone must daily remove about 5,500 tons of refuse and garbage. At the present about 40 per cent of this is burned in refuse destructors, of which about 19 are in use or under construction. Municipal incinerators or refuse destructors operate as a rule at a temperature between 1,472 and 2,102 degrees F. With the methods used, all odors are eliminated at temperatures above 1,382 degrees F. It is stated in an article on European developments in municipal refuse destructors that the average refuse in England has a heating value of 5,450 to 7,270 B.t.u. per lb. but that the average refuse on the Continent has a heating value of only about 2,180 to 2,720 B.t.u. per lb. so that frequently other fuels must be added to burn the refuse.

Refuse destructors have been under improvement in

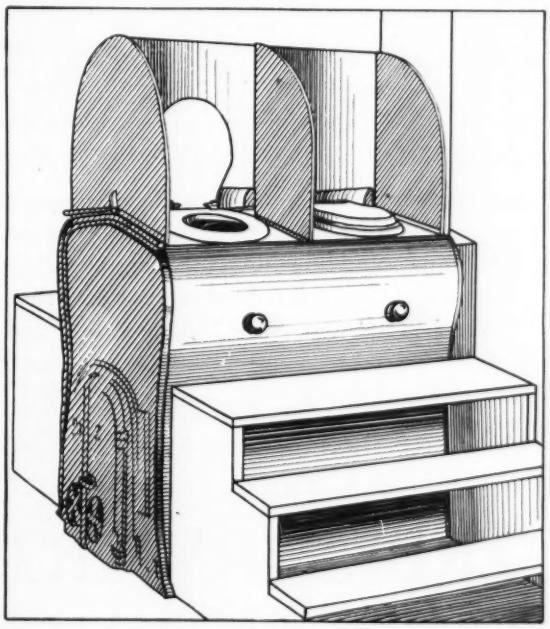
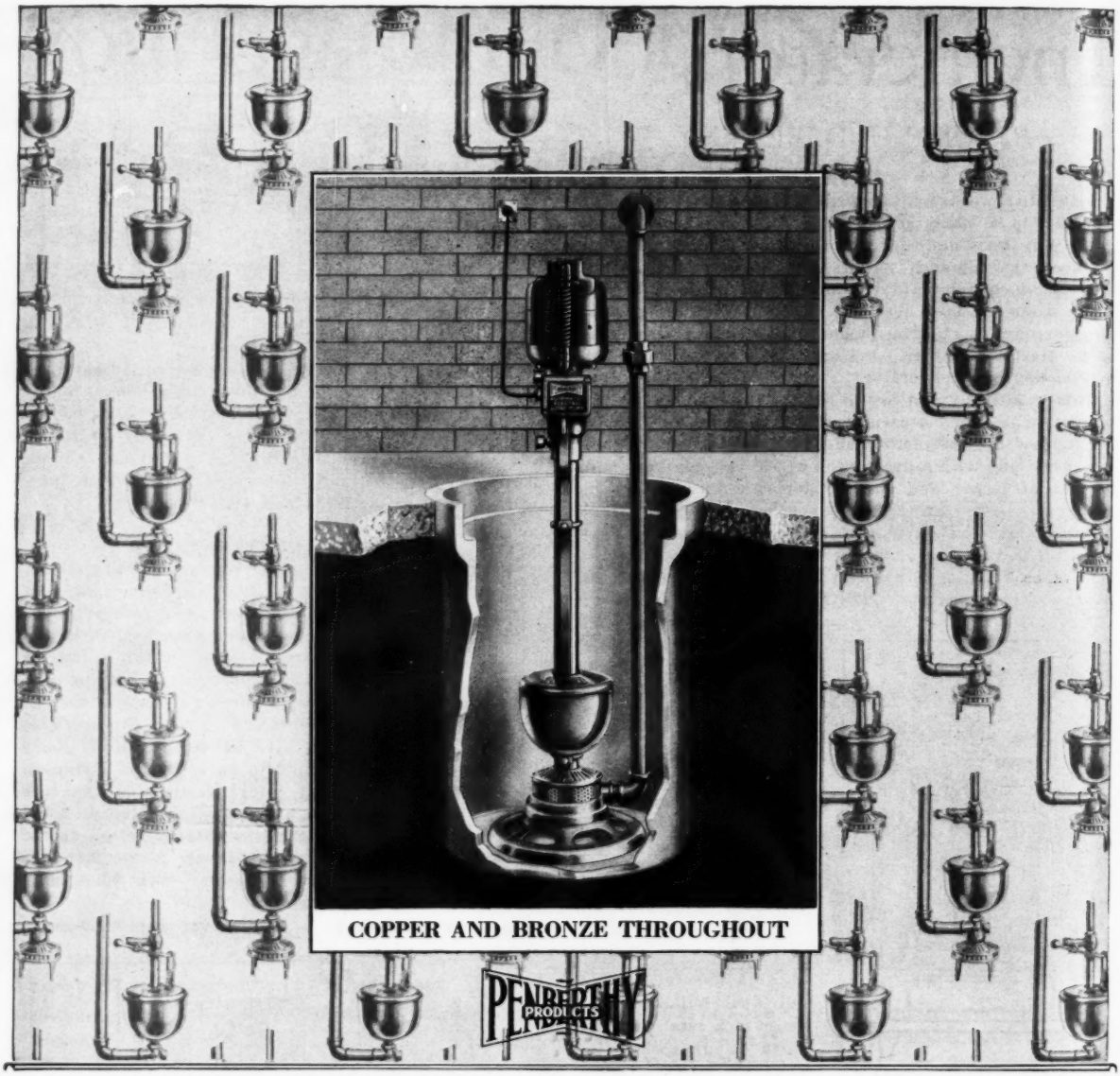


Fig. 3



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England since about 1875. They must be specially designed to burn the refuse completely and without odors. Different average grades of refuse frequently require differently designed refuse destructors. For instance, the refuse destructor suitable for British conditions is not suitable for German conditions. Where extreme economies are necessary, the heat generated in burning the refuse is utilized in steam generating plants, district heating systems, industrial processes or in some other way.

One American concern which installs municipal incinerators reports some interesting figures on their business, as follows: "Municipal sanitary engineers realize the value of the scientific disposal of garbage, rubbish and other refuse. The city of New York is building its second incinerator at a contract of $213,500. An 800-ton incinerator is being completed at Los Angeles at a cost of $370,000. A triple furnace incinerator costing $100,000 is being constructed at Portland, Ore. To show the quantity of material handled by such plants, it may be mentioned that in 1926 the 50-ton incineration plant of the city of Greensboro, N. C., disposed of 20,201 tons of garbage, 933 dogs, and 104 horses and cows at an average cost of 31 cents per ton." This company alone installed over 200 incinerators for municipalities during the past 14 years.

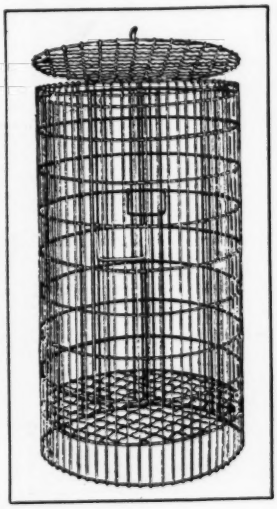


Fig. 4

Cities that do not operate incinerators or refuse destructors are required to dump the refuse in low land, rivers or lakes. Other cities sort or have the refuse sorted, and the refuse having fertilizing value is spread over farmland. In some places the garbage is fed to hogs, against which there is naturally some justifiable resentment, as needles, glass and other injurious materials are likely to be found in the garbage. For instance, in some cities in Holland the household garbage, waste from the streets and refuse from septic tanks is mixed with other animal wastes and sold to the farmers. It makes an excellent fertilizer, but due to the introduction of more convenient artificial fertilizers, the sale of garbage as fertilizer has lessened so that the Dutch cities are forced to dump their refuse in pits or use some other method of low-cost disposal.

The big problem of municipal refuse disposal is that of reducing the expense. No matter what the expenses are, the public that produces the garbage and refuse, must eventually pay for its disposal. Rigid economies are employed in a number of European municipal refuse destructor plants. As said above, the heat is utilized in various ways. Then there is about 800 lb. of residue per ton of refuse. This is frequently used in road construction and similar applications, for walls, plaster, brick, mortar, etc. Some cities supply laundries and public baths with heat generated in their refuse destructors.

REFUSE DISPOSAL FOR INDUSTRIAL PLANTS

AS A RULE the municipal and larger industrial incinerators are installed by engineers and companies specially equipped for this work. For instance, one corporation builds modern refuse destructor plants of all sizes to suit all conditions. They build plants in capacities from 5 tons to 1,000 tons per day. They carry out preliminary surveys, design and build the complete plant. In many cases they operate the plant under a contract. Furthermore, the corporation installs auxiliary service such as power generation plant, clinker and ash utilization plant, public baths and laundries, etc. Their service extends to villages, small communities, industrial plants, military encampments, hospitals, penitentiaries, etc.

The activities in the disposal of garbage and other refuse on a large scale are reviewed here to acquaint the reader with the extent of the incinerator industry and some of its problems. This knowledge is also of a certain value for the installation, the fitting and operation of various types of domestic incinerators. It is difficult to draw strictly a line between the domestic incinerator and the larger industrial incinerator. However, it is more important to give a fairly good picture of the field.

The incinerator has a large number of special applications in the industrial field, such as burning sawdust, shavings, wood, excelsior, waste paper, and refuse of all kinds. Specially designed furnaces are available and, as a rule, necessary for this kind of incineration or utilization of refuse products. Many examples of industrial incineration could be drawn from the large manufacturing concerns such as the Ford Motor Co. and others.

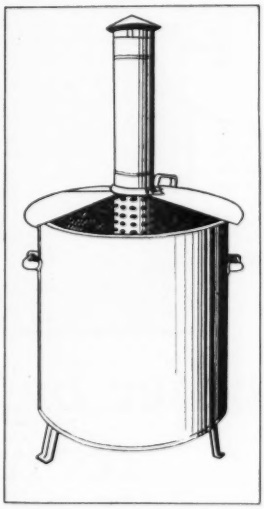


Fig. 5

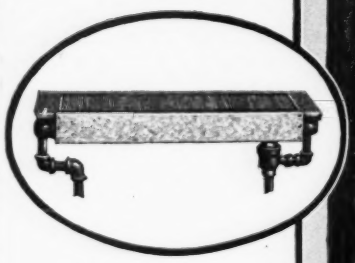
An example of industrial incineration is the down-draft system shown in Fig. 1. This furnace has a double grate, the coal being burned on the top grate and the refuse on the bottom grate. As the smoke passes from the waste through the coal fire, it is consumed. Furnaces of this type can be installed to advantage in department stores, mail order houses or wherever a considerable amount of combustible refuse accumulates. The down-draft system of this particular design can be installed in return tubular, Scotch marine and horizontal water tube boilers. In this method of incineration the building is kept clean of rubbish and furthermore the waste is used to generate steam, thereby saving fuel.

Special types of incinerators which can really not be called domestic incinerators are those manufactured for use in hospital wards, operating rooms, etc., for immediate disposal of liquid human waste, sputum, dressings, bandages and other waste. A gas-fired incinerator for this service is shown in Fig. 2. It is furnished either in the portable or the built-in type. The incinerator is said to be odorless in burning the waste, both inside the ward and outside of the building. As a dispenser of waste, and as a sterilizer the incinerator is rendering invaluable service in the medical field.

A very special application of the incinerator is that of reducing human wastes. An incinerator of this type is shown in Fig. 3. It is available as a sanitary incinerator only or as a combination sanitary or toilet and garbage incinerator. It is recommended for use in factories, power plants, construction camps, and other places where no sewage system or other means of sewage disposal is available. The human waste may be evaporated and reduced to ashes every one or two days, wood, coal or coke being used as an auxiliary fuel. When the incinerator shown

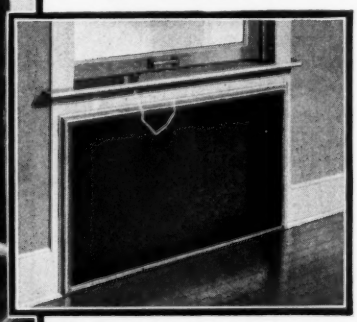
Another Big

UNDER-WINDOW



The famous Trane copper-fin heating element is now part of a standard three-piece unit, furnished complete, *ready to install* under windows.

The new under-window unit fits into this standard wall space. *No work required of other trades* — carpenters, lathers, plasterers, sheet metal men, etc.



Another big step forward in room heating

Here's what you asked for! A Trane Concealed Heater especially designed for installation under windows. A complete outfit to slip in the wall without fuss, bother, or extras to buy. A concealed heater with the entire front panel removable, so you will have no plastering problems and so you can easily and quickly inspect the heater, trap, or valves if you wish. An outfit with underslung piping connections, which will save you at least a foot in length for a given heater. A heater with universal fittings that are suitable for use on all types of heating systems.

This new Trane Under Window Concealed Heater is what you want. Convected Heat. Instantaneous control. A lower installed cost than we could ever promise before. Simple, quick, handy, convenient, the last word in modern concealed heating.

Thousands of installations of the original Concealed Heaters in the past two years furnish the background for this perfected unit. Here are the details:

Trane Achievement

CONCEALED HEATER

Complete Assembly Furnished: The Trane Under-Window Concealed Heater is a complete unit. Three parts: (1) Wall box acts as a stack — guides flow of heated air from heater out into room. (2) Heating unit — standard Trane design; all copper — no soldered or welded joints. (3) Front panel completely covers opening left in wall; perforated at bottom for cold air inlet, at top for warm air outlet. Choice of several styles.

A One-Man Job: All you need ask of other trades is a hole in the wall, of the correct size. One man does all the rest — even to unloading from the truck, as the entire unit weighs only 1/10 as much as an equivalent cast iron radiator. Neither the carpenter nor the plasterer has any further contact with you.

Lower Cost: The complete Under-Window Concealed Heater, including front panel, actually costs less installed than the standard Concealed Heater.

Space Saved: New underslung pipe connection makes unit approximately 1 ft. shorter for a given heater — a point that appeals strongly to architects.

Ample Capacity: Sizes for all conditions. From 6 to 100 sq. ft. equivalent cast iron radiation — *guaranteed* — available in complete units. Larger capacities available on special orders.

Immediate Access at Any Time: Simply remove the front panel. Trap is underneath the heater — easily reached for hooking up or examining. No difficulty in servicing after unit is once installed.

Method of Installing: (1) Slip wall box into position. (2) Place heater on two lugs in wall box, make two piping connections. (3) Fasten front panel to wall box with screws. And that's all! Nothing could be quicker or simpler.

Control: Two methods, both instantaneous: (1) Shutter type grille installed back of heat outlet, operated by the small knob on the outside of the heating unit. (2) Control valve on the heating unit.

Standard Sizes: Four widths: 4″, 6″, 8″, 12″. 4″and 6″ units fit standard walls without furring. 8″ and 12″ units designed for window seats — may be used with higher stacks anywhere in walls, with beautiful panel effect on furring. Lengths and heights for almost any condition — under windows or elsewhere in rooms.

Write at once for additional information on this modern development.

What they say—

"Trane Heat Cabinets entirely satisfactory. Am pleased to recommend them to all who contemplate putting in a modern system of heating."

Rev. Wm. E. O'Hern,
Emporium, Pa.
(Installation in Church and Rectory.)

"Installed one for a customer who is burning oil in a steam plant. Sun room with 90 ft. of 26″ radiation never heated properly before. With a 54 ft. Trane Cabinet, the customer tells us this is the warmest room in the house."

Ebling Hardware and Plumbing Co., Inc.,
Kenmore, N. Y.

"Have had no trouble with them whatever in the severe weather, although our house occupies the top of a hill where the wind sweeps continuously.

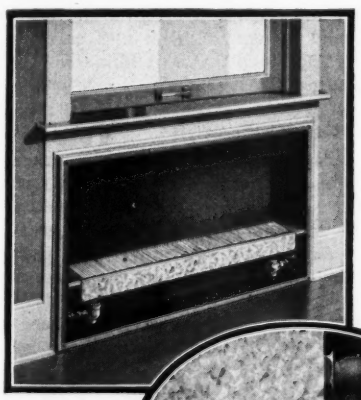
Lincoln Davis, President.
Erie (Pa.)
Bolt & Nut Co.

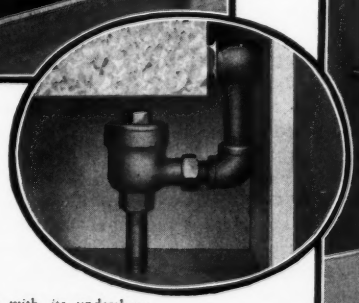
"Am thoroughly pleased with the results obtained from their use."

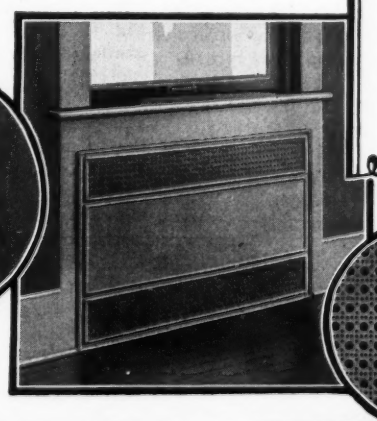
Clifton Lee, Jr.,
Architect and Engineer,
Richmond, Va.

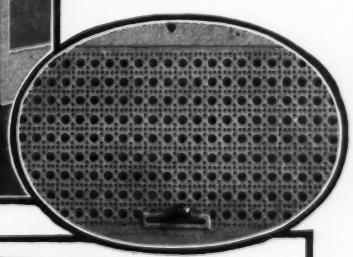
"More suitable in my house than the cast iron radiators they replaced."

H. C. Howard,
Secretary and Treasurer,
Rhode Island Supply & Sprinkler Co.,
Providence.









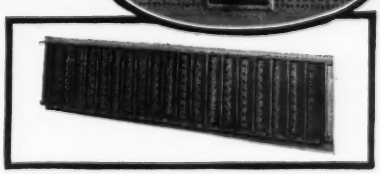
The new unit with its underslung piping connections is a *foot shorter* than the standard Trane Concealed outfit using a heater of the same length. Saves valuable space.

This is the first of three important announcements to be made by Trane during 1928. The next will appear in an early issue of this publication.

THE TRANE CO. (*Est. 1885*), 204 Cameron Ave., La Crosse, Wis.

HEAT CABINETS **TRANE** CONCEALED HEATERS

••• PUMPS AND HEATING SPECIALTIES •••



The front of the unit, including grilles, is a one-piece panel, furnished complete. Slips on and off in a moment — provides *immediate access to the unit at any time.* Note detail of control knob on the damper grille, also rear view of grille showing shutters.

here is to be operated, the wooden toilet seats are replaced with iron covers and within two hours or so the incineration is completed. This particular design has four seats and a capacity equal to the use of 120 persons daily. It is a sanitary convenience in the disposal of waste and in prevention of pollution of air, ground and streams.

OUTDOOR INCINERATORS

GOOD judgment considers it both unsightly and insanitary as well as dangerous on account of fire to have waste paper, rubbish and other combustible waste scattered about the home, on the streets, in alleys, on golf

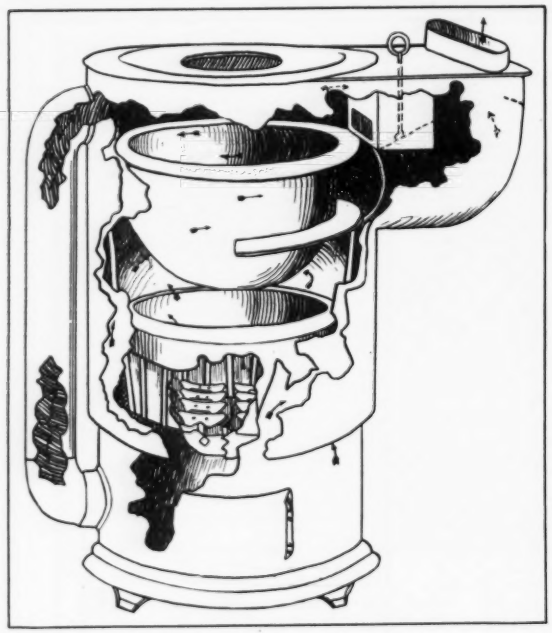


Fig. 6

courses, in parks, in cemeteries, in tourists' camps, in public courts or on beaches. The refuse could be burned directly on the ground, but then there is danger of spreading the fire through the grass or by gusts of wind. Such refuse may be burned in rubbish burners if no better means of disposal is available. A common design of rubbish burner is shown in Fig. 4. Such an incinerator is easily carried from place to place. A disadvantage is that the fuel value of the refuse can not be utilized.

Some types of rubbish burners are also designed for burning a certain percentage of garbage. A standard proportion is 70 to 80 per cent of dry rubbish and 30 to 20 per cent of garbage refuse. An incinerator of this type is shown in Fig. 5. After it is filled, the fire is started at the top, and the cover replaced. The fire burns downward, combustion being assured by the perforated inner flue. The arrester on the top of the flue prevents the flying about of sparks. No attention is necessary after the fire is lighted. The incinerator is not affected by rain or wind. The garbage and rubbish can be dumped into it at any time. Hence, the rubbish, garbage, fire and flame are always out of sight and out of the mind. Incinerators of this type are useful about country clubs, estates, parks, camps, resorts, hotels, stores, homes, etc.

WHY BURN GARBAGE AND OTHER REFUSE?

IF WE stop here to ask the question, "Why burn garbage and other refuse?" someone would probably answer, "To get rid of it!" That is indeed true. But how, where and when, at what cost, how well, how conveniently, etc.? these are other considerations that must be in one's mind if a suitable incinerator is to be installed. As to the advantages of incinerators, there are scores and scores of them. Several have been mentioned in discussing municipal and industrial incineration. Others include the following:

No need to separate garbage from other refuse,
No stained and greasy garbage cans,
Always ready for use,
Can be installed in kitchen, wall or basement,
No walking outdoors in rain, snow or wind,
No opening of porch doors on windy cold winter days,
Not only burn refuse but sterilize the residue,
Eliminate disease-breeding garbage cans,
No unsightly waste paper baskets around the home,
Eliminate objectionable odors of garbage can,
No unsightly garbage cans on back porches,
Save in janitor work and expense,
Add to value of apartment building,
Eliminate purchase of garbage cans,
Make apartments more desirable to tenants,
Are as necessary as the kitchen sink,
Destroy rubbish to prevent fires,
Help keep basements and rooms tidy,
Contribute to the health of the family,
Make garbage disposal a convenience,

—and many other advantages that are easily apparent to the closest observer.

One of the best sanitary methods of garbage disposal is to burn it on the premises. Then there is little chance for decay, for flies to breed and feed, and for rats and other hosts to carry disease, and for contact with filth carrying insects and vermin. The incinerator eliminates the garbage,—the fly's dinnerpail.

INDOOR INCINERATORS

THE INDOOR incinerator has this special advantage, that the garbage can be disposed of conveniently regardless of storm, rain, cold, snow or any other weather condition. Many steps to the alley through wet grass, water or mud are thus saved. Of the many types of indoor incinerators of the smaller sizes one is shown in Fig. 6. This type is recommended where no gas or oil is available for auxiliary firing of the incinerator, or where a combination hot water heater and garbage burner is not suitable. It meets the requirements of suburban homes and smaller residences. In this design all fumes from the fire pass through the fire for purification before they enter the flue, as indicated by the arrows. Fresh air is drawn into the burner through the space between the burner and the upper outside section. As it enters over the container M, it mixes with the fumes and enters the downdraft tube at the side, and is carried into the ash pit to be drawn through the fire and then to the stack. Both solid and liquid refuse may be placed in the container over the fire pot. This container swings on trunnions and can be easily dumped after incineration is completed.

Editorial Note: The second half of this article will appear in an early issue and will deal to a greater extent with domestic incinerators.

Heating engineers have played an important part in making the American people discard the abundance of clothing they used to wear, in the opinion of David C. Mills, New York, general director of the National Association of Fur Industry, who was in Milwaukee recently. He said that with steam heat in homes, apartments, and office buildings, the old fashioned woolen garments have given way to lighter clothes.

"NO GOLDFISH WOULD GO NEAR IT"

"Not that I have anything against your toilet, Mister. I give it all the respect due extreme old age. But it is getting feeble. When it's flushed it makes a noise like a cyclone in Kansas. Its smell does not remind me of either roses or honeysuckle."

"It was a fine toilet for your grandfather. Today it wouldn't even make a good goldfish bowl."

The Master Plumber making these remarks knows his profits. He knows that if you tell people the facts about a toilet in bad condition you can sell them a Madera. It's easy! Just tell them about the Madera's long bowl and seat, its big water area, large trapway and powerful—yet quiet—flushing.

Have your journeymen carry a few Madera leaflets and give them to customers who need a new toilet.

And remember, on every Madera sale you make more than four times the profit you get from a washdown. Thomas Maddock's Sons Company, Trenton, N. J.

MADDOCK'S *Improved*
MADERA

Men prefer showers

MOST men would rather get under a shower than into a bath tub. The country clubs, Y. M. C. A.'s and schools have taught them the shower habit—*and have taught them the name Speakman.* More showers are sold and installed each year. This will be the biggest shower summer in history. Talk showers to your customers. And take the easy course—talk Speakman Showers.

SPEAKMAN COMPANY
Wilmington, Delaware

SPEAKMAN SHOWERS and FIXTURES

Unusual Construction

IN TWO accompanying views, we show an unusual and interesting piece of plumbing construction. We quote from the letter accompanying the photographs from which these illustrations are made, as follows:

"We are sending you two photographs of the roughing of a double toilet room, each containing one wall-hung water closet, one bedpan washer, one basin and one shower bath. We also send a blue print showing the floor plan. As this was rather an unusual construction, it became necessary for us to design and have cast, a special sanitary tee, tapped for the bedpan washer and basin, and reduced for the vent. We thought that probably this would be of some interest to you. This is one of some forty-odd toilet rooms of similar construction in the W. I. Cook Memorial Hospital, this city, W. G. Clarkson and Co., architects, and Montrief & Montrief, plumbing contractors, Fort Worth, Texas."

Using both illustrations, one can get quite a clear understanding of the work, and there certainly was a lot of it condensed into a small space.

The floor plan, shown in Fig. 3, shows that unlike many installations, the fixtures in the two bath rooms making up a pair, were not located back to back. This meant that common wastes and vents could not be employed to reduce the job to its simplest terms.

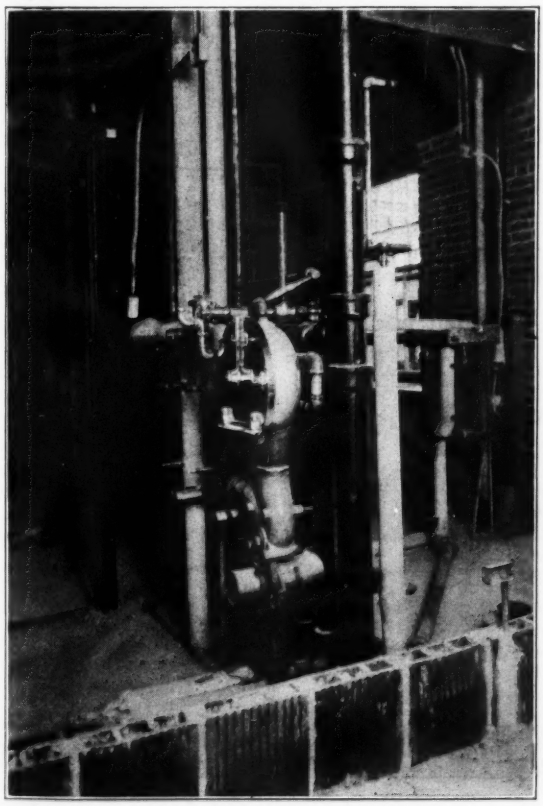


Fig. 2

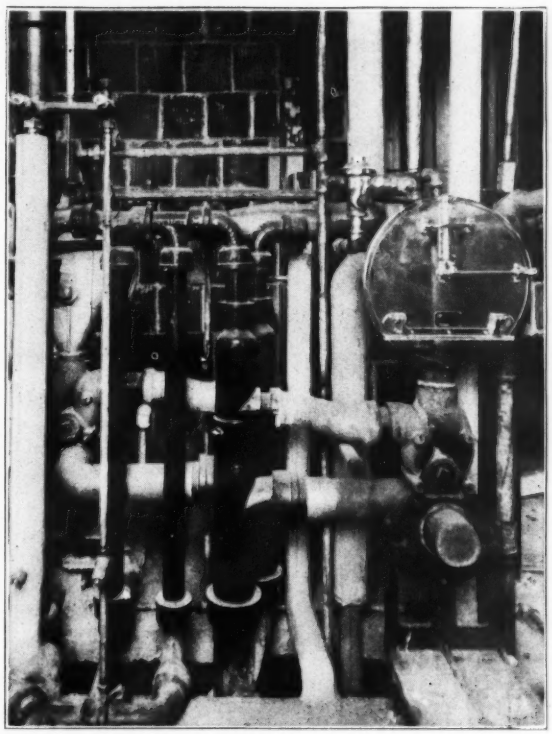


Fig. 1

Often nowadays, work of this type is installed with steel pipe and cast iron screwed fittings, but it will be noted that this seems to be a cast iron installation throughout.

The floor plan apparently does not indicate the location of the two bed pan washers. Fig. 1 shows the device most clearly, at the extreme right, and above the water closet connection.

As we figure it out, Fig. 1 shows a view obtained by looking upon the work somewhat in the direction of arrow A, Fig. 3, and Fig. 2 from about the direction of arrow B.

Probably the feature of chief interest is the special fitting that had to be designed. It shows very clearly in Fig. 1, about in the center of the illustration.

Nowadays, with almost an infinite number of special drainage and vent fittings to select from, it is not often that a situation arises such as this, where a fitting actually has to be designed and made up to meet the requirements, and in this instance it has been handled nicely.

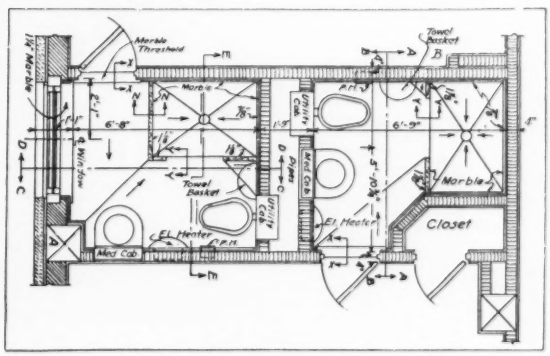
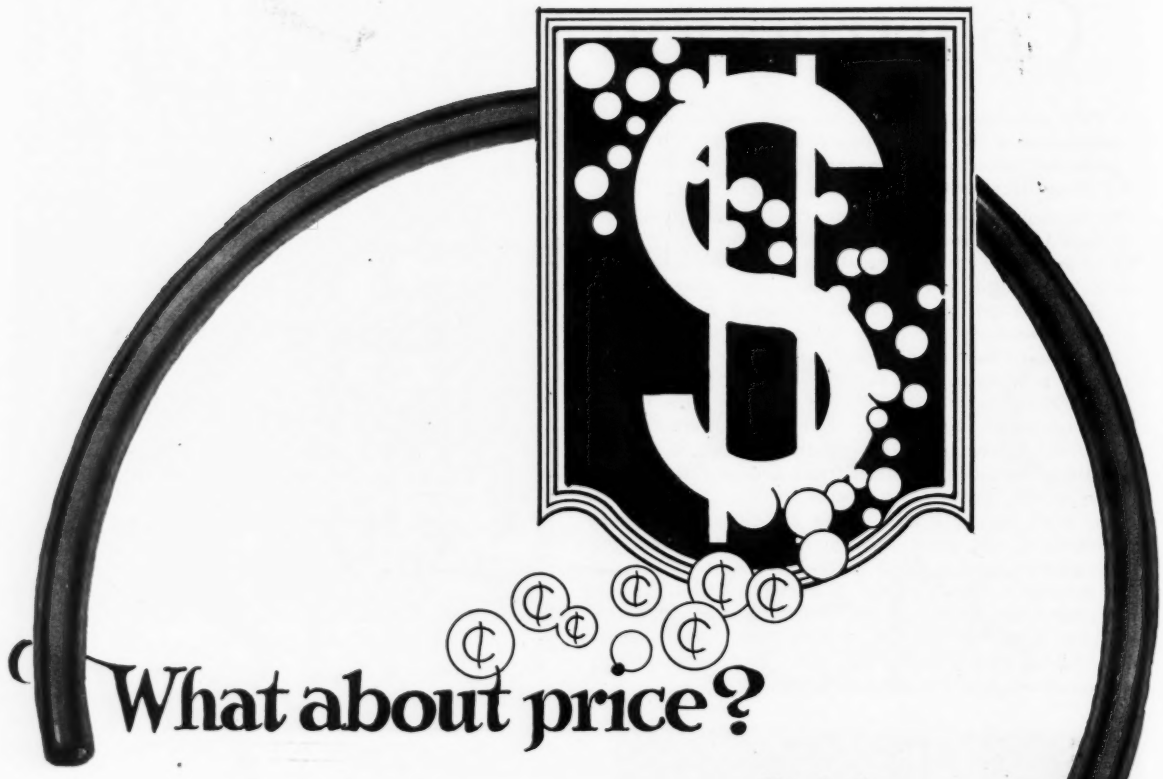


Fig. 3

LEAD PIPE



What about price?

Yes, lead pipe at times, depending on market conditions, is more expensive. Why shouldn't it be? Consider the advantages of lead pipe and price ceases to be an issue worthy of attention.

You can install lead pipe easier and faster and it is cheaper for you to handle both in your shop and on the job.

When your customer mentions that lead pipe is more expensive do not make excuses for it. Lead pipe is worth every penny charged for it.

It may be a few cents more in cost but it gives years more in service.

NATIONAL LEAD COMPANY

LEAD
THE
EVERLASTING
METAL
THAT ONLY
A PLUMBER
CAN INSTALL

National Lead Co.
(Principal Office)
111 Broadway, N. Y. C.

Georgia Lead Co.
Atlanta, Ga.

Chadwick-Boston Lead Co.
Boston, Mass.

National Lead Co.
(Jas. Robertson Lead Works)
Baltimore, Md.

National Lead Co.
Buffalo, N. Y.

E. W. Blatchford Co.
Chicago, Ill.

National Lead Co.
(Raymond Lead Works)
Chicago, Ill.

National Lead Co.
Cincinnati, Ohio

National Lead Co.
Gibson & Price Co.
Cleveland, Ohio

Lawrence Shot & Lead Co
Omaha, Neb.

John T. Lewis & Bros. Co.
(Tatham Bros. Works)
Philadelphia, Pa.

National Lead & Oil Co.
of Pa.
Pittsburgh, Pa.

National Lead Co.
St. Louis, Mo.

National Lead Co.
(Northwestern Works)
St. Paul, Minn.

Hoyt Metal Co., Ltd.
of Canada
Toronto, Canada

RETAIL ADVERTISING SERVICE

This page is based on the belief that the man who is busy with the management of a retail shop hasn't time to make a special study of advertising. He needs and wants expert assistance so that his advertising will give him no great trouble. Those who subscribe to this service receive each week a reprint of this page and the cut for the week—all they have to do is hand them to their local newspaper. Only $4.20 for twelve week's service.

Series No. 20

That Morning Rush

—is it really necessary?

TO BE LATE in the morning—to have to rush breakfast and run for the train or street car—is getting off on the wrong foot. Best way in the world to start the morning is to get to the office in a leisurely manner. Analyze the cause for the morning rush. In many homes it's— because there's only ONE BATHROOM. Get rid of the wear and tear on the nerves, the wrangling about who's to bathe first. An extra bath may be installed in a space five feet square—it will enlarge your whole world by taking the rush out of the morning hours.

(In this space your Name, Telephone Number and Address).

KEEP your newspaper supplied with news items. They are valuable. They help keep your name before your community. Clip out this one and hand it to your paper.

MORNING BATH AN AID TO EFFICIENCY

The morning bath, says Harry Brown, local plumbing and heating contractor, is a physical and mental aid to an efficient day's work.

"But too many men," says Mr. Brown, "start their day with a rush. They have to bolt breakfast; they have to run for the street car. And often a little analysis of home equipment would place the blame where it belongs. If two or more people must go to the office in the morning, one bathroom is not sufficient. There ought to be an extra bathroom. Then each might have that morning bath—and still there would be time for a leisurely breakfast."

Modern bathrooms, Mr. Brown says, can be set up in a space only five feet square.

Rush! Rush! Rush!

—no mood for a good day's work

NO MAN can do an efficient day's work if he starts by bolting breakfast and running for the train or street car. Yet it goes on every day, particularly in homes where two or more must use the same bathroom in the morning. Instal an extra bath—it will take only a five-foot square space. Get your bath and your shave in a leisurely way—have time for a leisurely breakfast. Your day's work will be the better for it.

(In this space your Name, Telephone and Address)

GET after the older homes in your community—send this letter to a group of them and watch the results. Your stenographer can do it in her spare time.

HARRY BROWN
PLUMBING & HEATING

Two Rivers, N. Y.
June 23, 1928.

Mrs. Edward Jones,
Two Rivers, N. Y.

Dear Madam:

Is there a mad rush in your home in the morning—no time for breakfast—just a wild scramble for a cup of coffee and a "Good bye" shouted from the front sidewalk?

Often such difficulties in the home will, upon analysis, prove to be easily solvable. If there are two or more people in your family who must report for duty at about the same time in the morning—you need an extra bathroom to help them find time for a leisurely breakfast. Someone is always having to rush in the single-bath home—it's inevitable.

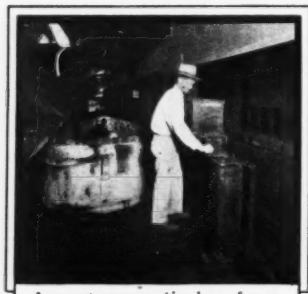
And it means that someone is in ill temper and not at all prepared for a good day's work.

You can instal an extra bathroom in a space five feet square—a gem of a little room, entirely adequate and convenient. It will add value to your house, too, because modern houses are all being equipped with extra baths.

We'd like very much to call and talk it over with you. No obligation at all on your part.

Very truly yours,
HARRY BROWN

ACCURACY *and Soundness*

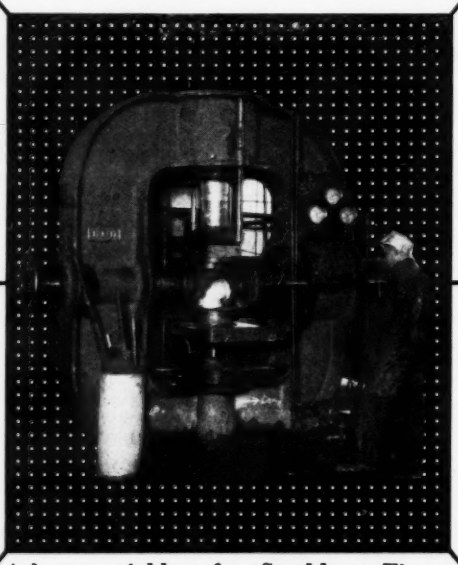


Accurate proportioning of raw materials under laboratory control by automatic scales

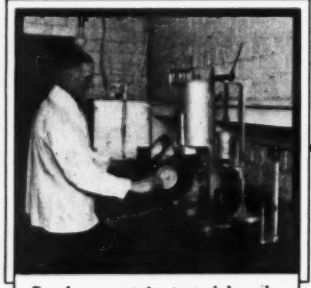
Soundness in Stockham Fittings—freedom from leaks, sand holes, blow holes and other imperfections—the result of accuracy in every manufacturing detail and in every test and inspection. Accuracy—unvarying accuracy—is the keynote of Stockham quality so evident in the perfect, uniform depth of threads that make Stockham Fittings preferred for pipe-line service.

Special core-setting methods assure more perfect molds, making leakproof castings

Photo-microscopic examinations of metal are a safeguard to produce sound fittings



Accurate inspection assures uniform heat of metal necessary to produce sound castings

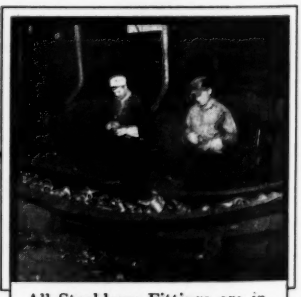


Sand accurately tested hourly to produce accurate molds for sound castings

Ask your jobber for Stockham Fittings. His stocks of Stockham Fittings and of all the materials you need are maintained for your best service. The jobber serves you with the greatest economy and speed. Send for our vest-pocket catalog of fittings.

STOCKHAM PIPE & FITTINGS CO.
BIRMINGHAM, ALA.

BOSTON NEW YORK *Warehouses* CHICAGO LOS ANGELES



All Stockham Fittings are inspected for soundness before and after tapping

CAST IRON
Screwed *Flanged* *Drainage*

MALLEABLE
Standard *Extra Heavy*
Oil Country Malleable

ELECTRIC CAST STEEL
Flanged *Screwed*

STOCKHAM FITTINGS

QUESTIONS

ASKED BY READERS AND ANSWERED BY EXPERTS

HOW TO HEAT A DRYING ROOM

Editor, "Domestic Engineering":—We have a room in the center of a heated building which is to be used as a drying room. We are planning to install coils in this room, a steam pressure of 50 lb. being available, and it is desired to heat this room to a temperature of 150 degrees. The temperature surrounding this room is about 70 degrees.

Assuming that the room is 40x20x12 ft., kindly tell me how I can figure the radiation that will have to be installed.

Connecticut. D. W.

To estimate correctly the amount of radiation required, it is necessary that all factors be considered and that the problem be worked on a B.t.u. basis. Correspondent neglected to state the kind and thickness of the partition, so we are assuming that it is the usual lath and plaster on both sides, or something similar. The floor and ceiling must also be considered, and with no other information available we have used the factor .15.

We have the following factors before us:

9,600 cubic ft. in room.
1,440 sq. ft. of wall.
1,600 sq. ft. of floor and ceiling.
.36 is the heat loss through partitions.
.15 is the heat loss through floors and ceilings.
80 degrees is the difference in temperature between 70 and 150.
Steam at 50 lb. pressure has an approximate temperature of 300 degrees.
150 is the difference between the steam and the room temperature.
.02 is the factor for raising 1 cubic ft. of air 1 degree.

$9{,}600 \times .02 \times 150 = 25{,}800$ B.t.u.
$1{,}440 \times .36 \times 80 = 41{,}440$ B.t.u.
$1{,}600 \times .15 \times 80 = 19{,}200$ B.t.u.

$86{,}440 \div 300 = 288$ sq. ft. radiation in pipe coils.

ABOUT REMODELING A HOT WATER SUPPLY SYSTEM

Editor, "Domestic Engineering":—We have had a discussion about the installation of a hot water supply system, and we would greatly appreciate your opinion.

A two-story hotel is being overhauled and the hot water lines remodeled. A new 500-gallon hot water storage tank is being installed. When this job is completed, the hotel will have 31 bathtubs and 74 lavatories, all of which will be supplied with water from the 500-gallon tank.

The city water pressure in the main varies from 75 to 110 lb. It is the intention to install a pressure reducing valve to reduce the pressure into the hot water tank to approximately 35 lb. The discussion is about the proper size for the reducing valve and the supply line to the hot water storage tank.

A 1-inch pressure reducing valve was ordered, and it was the intention to run a 1¼-inch line from the main up to a point very near the hot water storage tank, then reduce and go through the 1-inch pressure valve into the hot water storage tank. The point of the discussion is this: Will a 1-inch valve give sufficient supply to the tank? If not, should a 1¼-inch or a 1½-inch line and valve be used?

We would like to get some definite information.

Colorado. B. R.

As a rule, hot water tanks with a capacity of 500 gallons are tapped 2-inch, therefore, if water supply to building is 2-inch or larger, we would advise a 2-inch supply connection to the hot water tank with a 2-inch pressure reducing valve, set to maintain a pressure of 50 to 60 lb., with relief valve set at 70 to 75 lb.

It has been our experience that people in hotels want to be able to draw bath water in a hurry, therefore pipes of ample size are necessary.

If you cannot get a 2-inch connection to the tank, install the largest size that you can get, depending upon the size of the house supply, and use a reducing pressure valve of the same size as the supply pipe.

We also suggest the installation of a circulation line as a means of saving water.

HOW MUCH SPACE WILL ONE SQ. FT. OF RADIATION HEAT?

Editor, "Domestic Engineering":—How many cubic feet of space will one sq. ft. of steam radiation or hot water radiation heat?

Missouri. S. T. C.

Radiation cannot be computed accurately on a cubic foot basis, as one can well understand by a study of the following table, which is part of a short cut published by a manufacturer of heating specialties:

"For steam, divide contents by 180
Divide glass by 3.3
Divide net wall by 10.6

"Add the three together, and the sum total will be the amount of steam radiation required in a building of good construction, without any unusual exposure conditions, to heat from zero outside to 70 degrees inside."

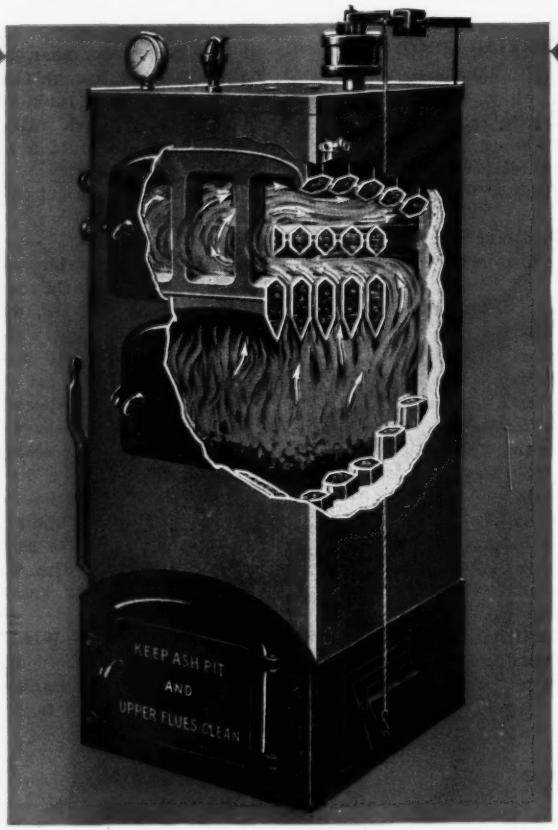
Thus in a corner room 12x15x9 ft., the contents are 1,620 cubic ft., divided by 180 is 9; two walls exposed make a total of 243 square feet of exposed wall from which we deduct 30 ft. of glass leaving a balance of 213 sq. ft., which we divide by 3.3 and arrive at 65, and we divide the glass by 10.6 and arrive at 3.

Therefore, in this particular room the radiation required for the contents is 9, exposed wall 65 and glass 3, total 77 sq. ft., of which amount 12 per cent represents the contents and 88 per cent the exposure and glass.

It is apparent that exposure and glass are the real factors to be considered, in fact, in accurate heat loss computations the window perimeter has an even greater bearing on the heat loss and must be considered.

For hot water heating, at least 50 per cent more radiation is required than for steam.

For HOMES AND SMALL BUILDINGS



Outstanding Points

1. *Attractive*—Durable empire green enamel finish, with glossy black trim. Fine lines and proportions.
2. *Easily Set*—Sectional portion shipped assembled—base complete with grate bars. Low erection costs. Double test before shipment eliminates leaks.
3. *Insulated*—A thick layer of rock wool fills every crevice between jacket and boiler.
4. *Efficient*—Double set of three flue ways provides a long forward and back fire travel, and assures a maximum of heat absorption.

Outstanding Points

5. *Convenient*—Exceptionally deep fire-pot with large capacity permits heavy charges, and thus requires only infrequent attention.
6. *Dependable*—Its dependability, efficiency, and heating qualities have been demonstrated on many varied installations. This boiler has passed with flying colors the test of actual service.
7. *Time-Saving*—Large doors make firing and cleaning quick, simple and easy tasks.
8. *Adaptable*—Burns hard or soft coal, coke, oil, or gas—all with a maximum of fuel efficiency and little labor.

The National Jacketed Boiler has a trim, durable, dirt-defying empire green jacket, that houses a dependable, efficient boiler. It burns hard or soft coal, coke, oil, or gas. It is furnished for either steam, vapor, or hot water systems. It is easy to tend, economical to operate, trust-worthy and effective. The fire box is exceptionally large. It permits heavy fuel charges. It provides ample space for proper combustion. It decreases the attention necessary. The long forward and back fire travel assures maximum heat absorption. A thick layer of rock wool insulation decreases heat loss. For the home or small building, the National Jacketed Boiler is an attractive, dependable source of controlled, economical, healthful warmth, a permanent source of comfort and satisfaction.

NATIONAL RADIATOR CORPORATION

Manufacturer of Radiators and Boilers

Ten Plants devoted to National Service through these Branch Offices and Warehouses:

Baltimore, Md.—2622 Frisby St.
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Buffalo, N. Y.—259-265 Delaware Ave.
Chicago, Ill.—2445 N. Keeler Ave.
Cleveland, Ohio—935 E. 63rd St.
Cincinnati, Ohio—Spring Grove and Elmira Ave.
Indianapolis, Ind.—431 W. Georgia St.
Johnstown, Pa.—221 Central Ave.
Louisville, Ky.—1126 W. Breckenridge St.
Milwaukee, Wis.—124-130 Jefferson St.
New York, N. Y.—55 W. 42nd St.
Omaha, Neb.—108-112 S. Tenth St.
Philadelphia, Pa.—121 N. Broad St.
Pittsburgh, Pa.—1509 Arrott Bldg.
Richmond, Va.—3032 Norfolk St.
St. Louis, Mo.—1042 Central Industrial St.
Washington, D. C.—2205 Fifth St., N. E.

AERO

NATIONAL JACKETED BOILER

NATIONAL PRODUCTS

Cross Connections

(Continued from Page 20)

and entry of unsterile water into the sterile water. Experience is a hard teacher and it has taught that trouble has frequently been caused by a combination of circumstances which everyone admits is unlikely to occur..

The investigation made under the direction of Dr. Kegel revealed that in one instance supposedly sterile water was not thoroughly sterilized, owing to insufficient heating of the water. This water was being used in full confidence that its use was safe, but samples of it revealed the presence of bacteria of more than one type.

EACH SITUATION SHOULD BE STUDIED BY A SANITARY ENGINEER

THE CONSTRUCTION of the systems in different hospitals varies so greatly that no universally applicable rules can be laid down for guidance in correcting the defects. Each situation must be thoroughly studied by a sanitary engineer qualified to recognize the possibilities of danger. The failure of other methods is typified by the many bacteriological examinations of sterile water which have failed to reveal the source of the trouble.

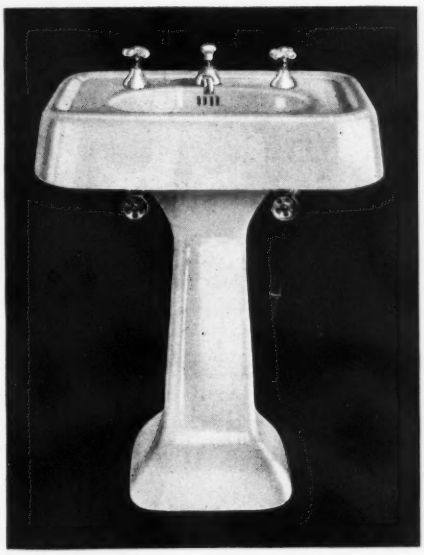
The study of Chicago hospitals indicates that it is impossible to forecast where improper connections may be found. We have found them from basement to the roof. When the defects have been discovered, they should be corrected by the application of measures which are known to be absolutely certain, for human life is too valuable a prize to be thrown away by the adoption of an uncertain makeshift for the sake of saving a few dollars. An absolute severing of all connections between the city water supply pipes and waste pipes connected to the drainage and sewer system should be required.

How Dangerous Cross Connections Occur

The question naturally arises why have these bottom connected sterilizers been installed? The answer is to be found in the lack of proper supervision. The practice of plumbing inspectors of the city has been to see that there are no cross-connections to the water supply within the building before approval of any installation of new plumbing is given. However, it has not been customary heretofore to consider that the sterilizers, bedpan washers and similar equipment in hospitals were a part of the plumbing system of the building. Ordinarily the city inspection has been made and the routine test applied before the sterilizers are even delivered to a hospital. If the work were found satisfactory, approval would be given. Subsequently the sterilizers would be installed, possibly by representatives of the manufacturers or by an employe of the hospital. Thus the health department would not be notified of the work.

It has been assumed in the past that the people making the installation of the equipment would avoid the dangerous connections which have now been discovered. Therefore no plumbing inspection would be made of the finished installation, and the medical inspector, whose duty it is to inspect hospitals, is scarcely to be expected to know all about the intricacies of plumbing.

Whatever may be the reason for the installation of potentially dangerous connections to sterilizers in the past, now that Dr. Kegel has drawn attention to the situation, it is important that master plumbers, engineers, health officials, hospital authorities and sterilizer manufacturers unite to correct the existing condition, which is said to be by no means confined to Chicago alone, and together they should take such measures as may be necessary to insure that there will be no recurrence of this difficulty.



All Can Agree on this Type of BEAUTY

The graceful lines, the well-balanced proportions, and the immaculate whiteness of Rundle Ware all combine to give it a type of beauty that meets unanimous approval. This attractiveness, combined with highest quality and up-to-the-minute features, makes an appeal that builds steady sales.

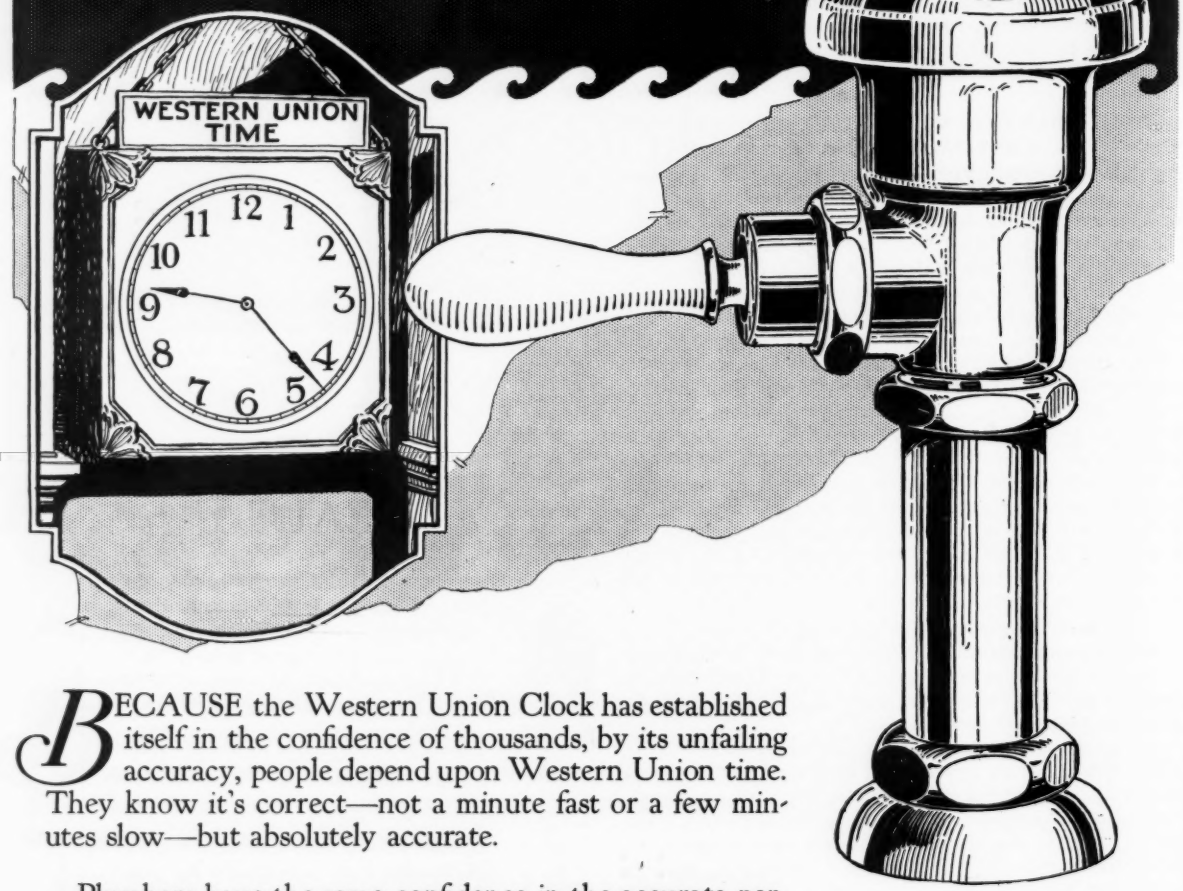
Let these captivating features of Rundle Ware build sales for you. Write for Free Illustrated Rundle Book which gives details of the extensive Rundle line and its sales building qualities.

Rundle Mfg. Co.
Milwaukee, Wis.

RUNDLE
PLUMBERS' SANITARY ENAMELED WARE
BRASS AND IRON GOODS

The Mark that Has Won the Confidence of Buyers

Accurate



BECAUSE the Western Union Clock has established itself in the confidence of thousands, by its unfailing accuracy, people depend upon Western Union time. They know it's correct—not a minute fast or a few minutes slow—but absolutely accurate.

Plumbers have the same confidence in the accurate performance of Sloan Flush Valves. They always deliver the correct amount of water required by the fixture. No more—that's waste. No less—that's insanitation. Then they shut off automatically, whether the handle is held or released.

ROYAL FLUSH VALVES

SLOAN VALVE COMPANY

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Albany, N. Y.
Atlanta, Ga.
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Butte, Mont.
Cincinnati, Ohio
Cleveland, Ohio
Dallas, Tex.
Denver, Colo.
Des Moines, Iowa
Detroit, Mich.
Durham, Conn.
Fort Wayne, Ind.
Grand Rapids, Mich.
Greensboro, N. C.
Indianapolis, Ind.
Kansas City, Mo.
Los Angeles, Cal.
Memphis, Tenn.
Miami, Fla.
Milwaukee, Wis.
Minneapolis, Minn.
Nashville, Tenn.
Newark, N. J.
New Orleans, La.
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Oklahoma City, Okla.
Philadelphia, Pa.
Pittsburgh, Pa.
Richmond, Va.
San Francisco, Cal.
Seattle, Wash.
St. Louis, Mo.
Syracuse, N. Y
Tampa, Fla.
Washington, D. C.

MARKETS

BUSINESS REPORTS FROM LARGE JOBBING CENTERS

Boiler And Radiator Prices Are Advanced

THIS week's business in the plumbing and heating materials' market was featured by the announcement of manufacturers of boilers and radiators of a price advance of approximately 5 per cent on boilers and about 10 per cent on radiation. The new sheets were dated June 18. At the time the new prices were announced some manufacturers were still busy cleaning up business accepted when radiation prices were advanced 5 per cent on May 22. Another price change effected late in the previous week was a 15 per cent reduction by makers on roll-rim and apron sink and laundry tray combinations. The week from a volume standpoint showed up well. Contractors' requirements in practically all sections are reported on the upgrade. While roughing-in materials are in greater demand than finishing commodities, the latter are also moving at a fairly good seasonal pace. Stocks at manufacturing and jobbing centers are sufficient to make possible early deliveries.

The highest month ever recorded for construction started in the 37 states east of the Rocky Mountains is the report of F. W. Dodge Corp. New building and engineering work contracted for in these states (about 91 per cent of the total country) during the past month amounted to $668,097,200. This tops the previous high record of April, 1928, by about 25 million dollars. The increase over May of last year was 21 per cent. The combined total for new construction started during the first five months of this year is also a record breaking figure. The total for the first five months of 1926 held the record up until now. This year's figure, amounting to $2,796,301,300 is 9 per cent ahead of the total for the first five months of last year and is 7 per cent over the total for the corresponding period of 1926.

NEW YORK

Trading Moves Upward—

The week for which this report is written failed to furnish much that is news over what was incorporated in the survey of the preceding seven days, aside from the fact that master plumbers and wholesalers were somewhat busier. Except where the rearrangements of prices effected by manufacturers of fittings toward mid-June created a flurry in demand, there was little or no change discernible in this feature where producers are involved. There is no sign of serious curtailment in any phase of the scheme of distribution, manufacturers' warehouse stocks in the majority of instances being more than equal to the existing demand from jobbers. This in itself gives the latter an advance in making quick deliveries.

Construction reports point to a continued gain in building volume throughout Westchester County and Long Island, N. Y., as well as in parts of Northern New Jersey. The predominating class of building in these areas involves home building of the better grade. This fact is substantiated by the statements of a group of loan associations in which it is disclosed that both the demand for mortgages and the amounts they entail are larger than they were a year ago at this time.

Prices on several of the major items fluctuated somewhat during the past 30 days, but the prevailing trend, however, was markedly upward. Among these changes were new sheets issued by manufacturers in which was incorporated a 5 per cent advance on radiation, and on June 18 an additional 10 per cent advance on radiation and a 5 per cent advance in boiler prices was made. Soil pipe quotations were boosted by some of the foundries. Other changes recorded were on radiator valves, brass, cast iron and malleable fittings, which also embraced an approximate 5 per cent advance. Roll-rim and apron sink and laundry tray combinations were reduced in price by makers 15 per cent. During this period construction awards have mounted rapidly, a feature of this territory that gives many interests in the plumbing and heating industry foundation for expressions of optimism when discussing the activity of the future. The current requirements of contractors, though, did not broaden in proportion, but have indicated a strong tendency toward betterment.

Soil Pipe

The week developed nothing new in the soil pipe situation. Plumbing contractors called for this commodity at a rate that, if anything, was a little greater than that noted during the previous seven days. Jobbers continue to buy pipe in lots large enough to keep their stocks safely above the shortage point. Foundries in the main are in good production and are making every effort to keep deliveries normal. No new price sheets were reported as issued by manufacturers during the week.

Steel Pipe

The steel pipe holdings of jobbers seemed rather complete and in consequence the tonnage shipped into this territory by mills for the week was somewhat below that which has come to be expected at this season of the year. Some wholesalers reported that less of this type pipe was called for by plumbing and heating contractors during the week than in any like period in the past 30 days. They feel, though, that it was simply a coincidence and should not be considered indicative of conditions generally at this time. Mills are assembling cars promptly. Prices remain unchanged at the sources of manufacture.

Wrought Iron Pipe

Orders from wholesalers did not constitute a particularly large volume of business for the week, which is another evidence of the irregularity in the demand for wrought iron pipe. Jobbers' stocks, while not heavy, seem in satisfactory shape, ample for the execution of orders from their trade. Mills can supply promptly practically all sizes of pipe. Contractors are in need of this commodity in quantities that vary from point to point but average well. Manufacturers continue on the sheet prices established about five years ago.

Enameled Ware

Buying was reported to be at about the same rate that existed during the preceding seven days. This accounted for a substantial, seasonal amount of ware being forwarded to both installers from jobbers' stocks and from the warehouses of manufacturers to the establishments of the latter mentioned factors. With no reports to the contrary, makers seem in a position to handle the business as it reaches them in compliance with instructions.

Pottery

With all of the old bookings of wash-downs and tanks shipped from the manufacturing sources, except for scattered cars here and there which are being moved out as quickly as possible, a healthy quantity of new business is recorded at prices that are reported to conform closely to the published sheets. Prospects ahead are seemingly good, as master plumbers are busy. A feature of this market, while not new, is according to indications found in the fact that contractors, after signing contracts, are holding off in placing their orders with jobbers for the fixtures involved in the work. No price changes were announced by makers during the week.

Plumbers' Brass Goods

Orders reaching some factories from buyers of wholesale houses were rather heavy in numbers during the week, but the majority involved small quantities of brass goods. There were, however, manufacturers who gave demand a rather spotty complexion for the week; as a whole, though, the volumes of both tubular and cast goods shipped into this territory exceed those of last year for this time. Factories are making every effort to keep deliveries on a satisfactory basis.

Range Boilers

The pace of buying, where range boilers are concerned, continues rather slow from the manufacturer's standpoint in comparison with the rate of a year ago. This seemingly is a reflection of the attitude of master plumbers as their purchases are not as great by like comparison. Jobbers can obtain shipments from factories on short notice. Prices have not been changed by manufacturers.

Boilers and Radiators

During the week manufacturers advanced prices on boilers 5 per cent and radiators 10 per cent. Manufacturers' shipments are mounting as heating contractors are calling for materials in quantities that total large enough to make inroads on the stocks of wholesalers. Plants are working at a good rate, keeping well enough ahead of demand to maintain a satisfactory shipping schedule.

Fittings

Practically all manufacturers of cast iron drainage, malleable and brass fittings have met the advance in prices announced last week. There is a variance among producers in the amount of business the changes created, which ranges from fair to good. This is undoubtedly due to the fact that some wholesalers had well supplied bins because of their purchases made at the time of the previous rise in prices. The current demand from contractors is quite good where the items used the most are concerned. Factories have good surpluses so that no difficulty with deliveries is encountered.

CENTRAL WEST

Good Trading Prevails—

The rate at which material moved into consumption was well sustained during the week and the improvement that has been apparent in the demand from master plumbers and heating contractors since early last month continued to show signs of becoming more pronounced. Wholesalers, almost without exception, state that calls for both finishing and roughing-in goods have reached close to a good seasonal pace, although the latter type of material, consisting of steel pipe, wrought iron pipe, soil pipe, fittings, etc., are in the greatest demand at the present time. With the current movement of roughing-in and the anticipated movement of this material in the next few weeks as a guide, jobbers look for a substantial consumption of finishing commodities late into the fall. There has been no apparent change in the buying habits of distributors, the majority of whom are contenting themselves with frequent small sized purchases that will keep their stocks at a safe working level. However, wholesalers' stocks cannot be termed light, as almost without exception they have sufficient material on hand to care for contractors' requirements promptly.

The week was featured with the announcement by makers of a 5 per cent advance in boiler prices and a 10 per cent advance on radiation. The advance by makers on June 11 in prices of fittings brought forth a fairly brisk buying movement as wholesalers seized the opportunity offered to anticipate their needs at the low prices. Many of the latter, however, were still in possession of rather good stocks of fittings purchased when prices were advanced by makers early in April. Generally speaking, immediate deliveries are available at sources of manufacture.

Soil Pipe

While plumbing contractors continue to call for soil pipe in good quantities to take care of their increasing needs for roughing-in material, this activity is not reflected in the same degree to manufacturers, due to the fact that the majority of distributors are well supplied with pipe. No price changes were announced by foundries during the week. Makers are in a position to grant prompt shipments.

Pipe—Steel and Wrought Iron

Steel and wrought iron pipe jobbers, while depending upon mills to carry the stock burden, are enjoying a fairly good seasonal turnover and their orders have been slightly more numerous in the past two weeks. Most of these involve one or two carloads at a time, according to reports. Pipe mill operations average well, and stocks at sources of manufacture are such that deliveries are not curtailed. Mill prices of steel pipe and wrought iron pipe did not change during the week, and are firm.

Fittings

The price change reported last week on malleable fittings, cast iron screwed and flanged fittings and brass fittings has been followed by practically all manufacturers. Most of the items were advanced in price. While many wholesalers purchased quite freely when the new prices were announced, some of them still had good stocks ordered at the time of the previous advance in prices. Contractors' requirements continue to show the betterment that has been apparent in late weeks. Both manufacturers and jobbers are in possession of sufficient stocks to grant satisfactory delivery service.

Enameled Ware

April shipments of enameled sanitary ware, as reported to the Department of Commerce by 22 manufacturers, comprising practically the entire industry, totaled 407,705

pieces, as compared with 381,395 pieces in March and 374,614 pieces in April, 1927. Wholesalers in this territory state that contractors are consuming a fairly good volume of this material, and that figuring they are doing indicates a bright future. Manufacturers can make immediate deliveries. On June 9 makers reduced prices 15 per cent on roll-rim apron sink and laundry tray combinations.

Pottery

Reports indicate that practically all the old business involving wash-down bowls and tanks has been shipped by manufacturers, and some wholesalers are coming into the market for additional quantities to keep their stocks in good working order. Contractor demand is continuing at the fair pace of the last two weeks. Potteries are well enough stocked with staples to insure immediate deliveries when so desired. Calls for specials is steady, according to potters. Makers' prices have not changed.

Plumbers' Brass Goods

The consumption by contractors of cast and tubular brass goods shows little change from that of the past two or three weeks, and, according to wholesalers covering this area, the volume is about average for this season of year. Distributors have not altered their buying habits, taking in fresh material as the needs of contractors warrant. Deliveries in general are satisfactory. There were no price changes announced at factories during the period covered by this report.

Range Boilers

The demand from contractors for range boilers was much the same as last week. Most wholesalers are in possession of good-sized stocks and are able to take care of their customers' needs promptly. Factories, also, are granting immediate shipments when so desired. Orders for small quantities continue to reach makers steadily. Manufacturers have not changed their price sheets.

Boilers and Radiators

Makers issued new sheets on June 18, advancing prices of boilers 5 per cent and radiation 10 per cent. A good volume of future delivery business resulted. Contractors are using a fair volume of heating material at the present time, and current demand is reported somewhat better than a few weeks back. Prompt delivery service may be had from manufacturers.

MIDDLE ATLANTIC

Jobbers' Stocks Are Drawn On More Freely—

Business in the chief centers of the Middle Atlantic States seemed somewhat irregular during the week in that many wholesale houses reported a noticeable increase in demand, while a number of manufacturing interests contended that the market was less active during the seven days covered by this report than it was the previous week. After the advance announced by manufacturers at the beginning of last week on some of the principal items in cast iron and malleable fittings, many jobbers made a similar price change to their trade and this, according to informants, has had the effect of reducing the spread that has existed in the resale prices of these two types.

A factor that is said to be holding down activity is that many home owners seem reluctant to spend money even for minor repairs; as a consequence, there is not a great deal of jobbing work for master plumbers, according to reports. Nevertheless, there is enough business for contractors right now to create the feeling that if it improves at the rate that has obtained for the past few weeks the year will come out with a satisfactory volume

The main drawback to business lies in the credit situation, according to the information gathered. The trade is watching this angle closely and in some instances is employing rigid methods in its regulation. Little or nothing is heard of delivery extensions. Manufacturers, while not over-abundantly stocked, can however fill satisfactorily the comparatively small, numerous orders that reach them from jobbers.

Soil Pipe

Sales of this requisite during the week showed very little change over the good rate of trading that surrounded it in the previous like period. Distributors are having little difficulty keeping their stocks in such shape as to give their trade satisfactory delivery service even though some foundries find it hard to keep production of some sizes abreast of demand. There is a variance in the sizes on which some producers are having this slight complication. The price sheets of manufacturers have undergone no change.

Steel Pipe

The average weekly tonnage reaching the mills from the Middle Atlantic section of the country is for quantities that are in fairly steady volume, but manufacturers are not in receipt of business of a broad enough nature to give them back logs to work against. Most jobbers' stocks are adequate to meet the demand of plumbing and heating contractors, which showed little change during the week over the good absorption just previously reported. Mill stocks permit undelayed shipments. Producers made no change in prices.

Wrought Iron Pipe

Business for mills was lighter this week, according to reports. Jobbers apparently were in a position to supply the wrought iron pipe requirements of their trade without calling on manufacturers for replacements of any size. Some of the contractors, however, seemed to feel that the business trend was upward. Mill stocks are ample enough to permit the quick assemblage of orders. Producers continue on the sheet prices that have existed for some years.

Enameled Ware

Those few jobbers who have not complete stocks of enameled ware are able to fill-in quickly as most factories are making prompt shipments, although demand from master plumbers is gathering momentum slowly and irregular placements by wholesale houses are far from heavy. Orders are mainly calling for light shipments, with the same conservativeness being shown in specifying for future needs. On June 9 makers reduced prices 15 per cent on roll-rim and apron sink and laundry tray combinations.

Pottery

Some releasing of business by master plumbers was recorded during the past few days and jobbers moved a fairly good volume of staple goods. A great many stocks of the latter are still able to withstand demand without the need for new ordering from potters. New buying for immediate delivery, as well as the contracting for the future requirements of buildings that are in the course of construction, was on the average light. Manufacturers' deliveries are prompt enough to be satisfactory; their prices are reported steady and unchanged.

Plumbers' Brass Goods

Manufacturers of both tubular and cast brass items seem to be adhering as closely as possible to their sheet prices, in which there has been no change. This continued true during the week despite the fact that this market was a rather quiet affair, with but a few orders here and there trickling through from jobbers. Demand, however, from master plumbers is improving. Factory operations in most cases are at a maximum and little is heard of deferred deliveries.

Range Boilers

Offerings of new business on the part of jobbers are rather slim. This is in line with the rate at which master plumbers are calling for range boilers. Factories are substantially stocked and it only follows that orders are forwarded promptly. Makers have made no change in prices.

Boilers and Radiators

During the week makers advanced prices 5 per cent on boilers and 10 per cent on radiation. Manufacturers have considerable business on order against which there are enough releases to give this market an encouraging aspect where both present and future volumes are concerned. Practically all factory stocks are complete, giving shipments a mark of promptness.

Fittings

Any weak spots in the holdings of jobbers have now been bolstered by orders placed before the price advances, which manufacturers announced in new sheets, were put into effect. The change reflected in the resale prices of jobbers tends to equalize the spread that existed between cast iron and malleable fittings. The industry as a whole, according to reports, has been put on a more substantial footing. Demand from contractors continued to show an upward tendency. Deliveries are readily obtainable all along the line of distribution.

The Stock Market

Quotations furnished by Frazier Jelke & Co., Chicago

Par Value	1928 High	Low	Quotations of June 16, 1928	*	Bid	Asked	Last
25	152¾	130⅛	American Radiator Co., com.	A	136	136½	136
100	147	142½	American Radiator Co., pfd.	A	147	148	147
50	74⅜	53¾	Anaconda Copper Mining Co.	A	65	65½	65
NP	49	27½	Brunswick-Balke-Collender Co.	A	40¼	40⅝	40½
NP	117½	90½	A. M. Byers Co., com.	A & F	96¾	97¼	97
100	112¼	108⅝	A. M. Byers Co., pfd.	A & F	112	112½	112¼
100	140	130	Century Electric Co., com.	G	130	135	130
100	106	101	Century Electric Co., pfd.	G	102	104	102
50	6	4⅛	Chicago Nipple Mfg. Co., "A"	B	3¾	4¼	4⅛
50	3	2	Chicago Nipple Mfg. Co., "B"	B	1½	2½	2
25	47½	45	Crane Company, com.	C	45	45½	45
100	121¼	118¾	Crane Company, pfd.	C	121	121½	121¼
100	94	91	Detroit Brass & Malleable Works	D	92	94	92
100	110	105	The John Douglas Co., pfd.	I	105	108	105
20	23	17	Eagle-Picher Lead Co.	I	16⅞	18	17¼
NP	50	32½	Fairbanks, Morse & Co., com.	A	37¾	* 38¼	38
100	111½	104	Fairbanks, Morse & Co., pfd.	A	109	109½	109⅛
NP	134	105⅛	Johns-Manville Corp.	B	106	106½	106⅛
100	160	150	Jones & Laughlin, com.	F	150	....	150
100	123	120	Jones & Laughlin, pfd.	F	120	121	120
10	21	20	Michigan Copper & Brass Co.	D	19	21	20
NP	45	30	Minneapolis-Honeywell Regulator Co.	C	35	35½	35
NP	42	32	F. E. Myers & Bro. Co.	H	32	33	32½
100	136	120	National Lead Co., com.	A	120	120½	120
100	147¼	139	National Lead Co., pfd.	A	146	146½	146
NP	40⅜	18	National Radiator Corp.	B	19	19½	19¼
100	108	104	Ohio Brass Co., pfd.	H	106	....	106
NP	100	92	Ohio Brass Co., "B"	H	92¾	93¼	93
100	101	100	Penberthy Injector Co., pfd.	D	100	101	100
25	26	3	Pierce, B. & P. Mfg. Corp., com.	U	4	10	4
100	95	20	Pierce, B. & P. Mfg. Corp., pfd.	U	35	65	35
NP	27	18¼	Richmond Radiator Co., com.	B	18	18½	18¼
NP	39½	36	Richmond Radiator Co., pfd.	B	35½	36½	36
100	53	40	Scovill Mfg. Co.	U	40	42	40
NP	39½	33¼	Standard San. Mfg. Co., com.	A & F	36½	38	37
100	125	115	Standard San. Mfg. Co., pfd.	A & F	115	....	116
100	55	45	Trenton Potteries Co., com.	U	45	55	45
100	95	95	Trenton Potteries Co., pfd.	U	95	105	95
100	300	190⅛	U. S. Cast Iron P. & F. Co., com.	A	247	247½	247
100	137	114	U. S. Cast Iron P. & F. Co., pfd.	A	123	124	123½
NP	46	38	U. S. Radiator Corp., com.	D	40	42	40
100	106	103	U. S. Radiator Corp., pfd.	D	103	....	103
100	61¼	37⅝	U. S. Rubber Co., com.	A	39	39½	39¼
100	109⅜	65¼	U. S. Rubber Co., pfd.	A	67½	68	67⅝
100	154	136½	U. S. Steel Corp., com.	A	138½	139	138⅝
100	147¼	138⅝	U. S. Steel Corp., pfd.	A	142	142¾	142⅝
NP	19	15	Walworth Company	A	15	16	15⅝
NP	10	6½	Williams Oil-O-Matic Htg. Corp.	C	8	9	8½
NP	106⅞	85	Youngstown Sheet & Tube Co.	A	84½	85¼	85

*Where listed—

A—New York Stock Exchange
B—New York Curb Exchange
C—Chicago Stock Exchange
D—Detroit Stock Exchange
E—Boston Stock Exchange
F—Pittsburgh Stock Exchange
G—St. Louis Stock Exchange
H—Cleveland Stock Exchange
I—Cincinnati Stock Exchange
U—Unlisted Stocks

The Metal Market

	June 19	Average May, 1928	Average Mar., 1928	Average 1927
PIG IRON—				
No. 2 foundry, Chicago, Furnace	$18.00	$18.20	$18.50	$19.66
PLATES AND SHEETS—				
Steel boiler plates, Pittsburgh, per lb.	1.85c	1.85c	1.90c	1.83c
Blue annealed sheets, No. 10, Pittsburgh, per lb.	1.90c	2.00c	2.10c	2.20c
Black sheets, No. 24, Pittsburgh, Per lb.	2.65c	2.75c	2.85c	2.91c
TIN—				
Straits tin	.50½c			
LEAD—				
Chicago	6.20c			

The Old Metal Market

Dealers' Buying Prices

	Per lb.		Per lb.
Aluminum clippings	18 c	Copper, light	10 c
Block tin	46 c	Copper, uncrucibled wire	11½c
Brass, light	6¼c	Faucets and valves	9 c
Brass, heavy mixed	7¾c	Lead, heavy	5.60c
Brass, red	9¾c	Solder joints	9 c
Copper, crucible	12 c		

NOTE: Prices are those quoted on Tuesday of this week.

NEW ENGLAND

Wholesalers' Volumes Trend Upward—

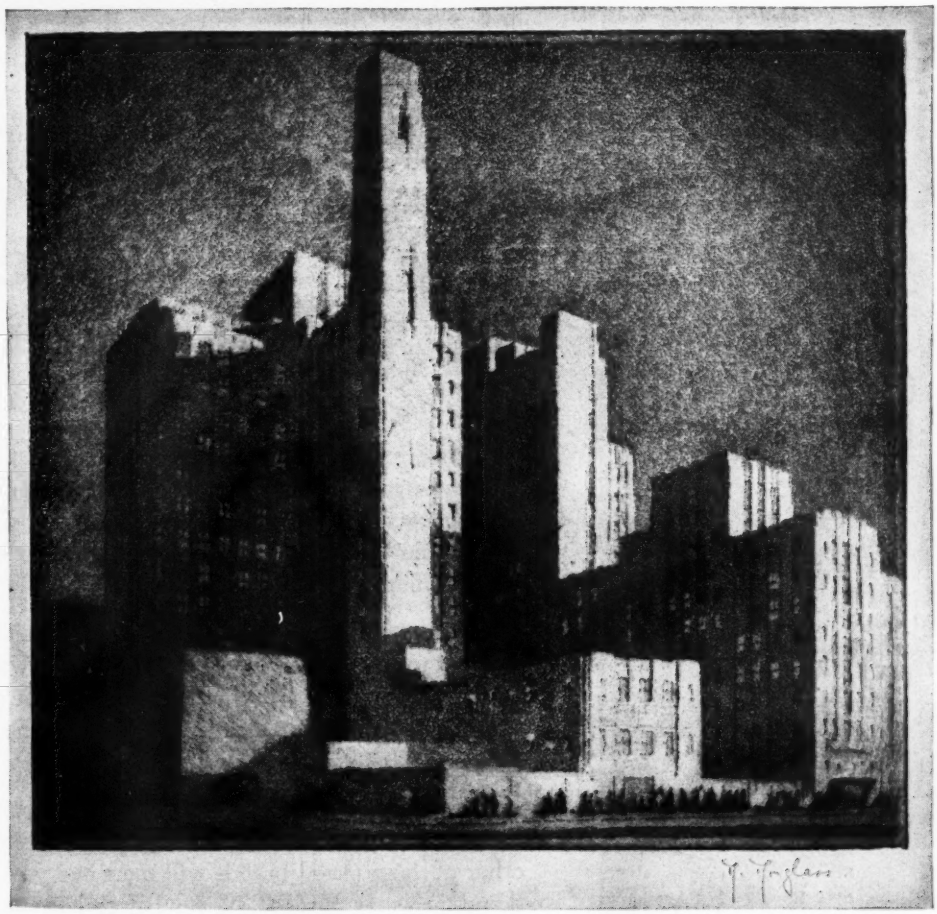
Distribution of plumbing and heating materials during the week just passed has furthered the upward movement which wholesalers have experienced since the beginning of the month. Contractors' orders are not only more numerous but are of continuing broader scope, which are reflections of quickened construction activities. Developments contemplated earlier in the year are rapidly becoming matters of fact, and their progression necessarily involves larger absorptions of all classes of materials. To this end, wholesalers have been extending their holdings and have quite large numbers of cover orders on makers' books for delivery in the near future. On June 18 makers announced a price advance of 5 per cent on boilers and 10 per cent on radiation.

Especially does this apply in the case of soil pipe, occasioned by recent price advances by foundries, and during the past week in the case of cast iron, malleable, drainage and brass fittings, which were advanced approximately 5 per cent. Makers of finishing materials report that present and prospective business is substantial and in keeping with this season of the year. Little is heard of in the way of delivery extensions, either from sources or from distributing points. Production is being maintained at a comparatively brisk pace.

Soil Pipe

There is at present only a small amount of business being transacted at the recently arrived at higher price level. Most foundries, however, report quite substantial forwardings on jobbers' cover orders which were placed at the time when lower prices were effective. Master plumbers' demands show continued improvement. Wholesalers announced reductions in their out-of-stock prices of

(Continued on Page 72)



A Donald Douglass Aquatint study of the MEDICAL CENTER, NEW YORK, *which consists of a group of buildings occupying a space of approximately twelve city blocks **** Architects, James Gamble Rogers, Inc.; General Contractors, Marc Eidlitz & Son, Inc.; Consulting Heating and Ventilating Engineers, Werner Nygren, Inc.; Heating Contractors, Gillis & Geoghegan.*

Over 7500 Jenkins Radiator Valves

Durability, sanitation, silence were the reasons given for installing a hot water heating system for the huge Medical Center, New York, but durability was the deciding factor.

Necessarily a reputation for durability governed the valve choice, too, and Jenkins Valves were installed on the radiators and elsewhere in the mammoth system. More than 7500 Jenkins Radiator Valves serve the heating system.

"—The most extensive hot water system ever installed"

Chas. N. Kent, referring to The Medical Center installation is quoted in the Jan. 15th Plumbers Trade Journal as follows: "I believe this is the most extensive hot water system ever installed."

Durability has long been associated with Jenkins Valves in the minds of plumbing and heating contractors, engineers and architects. Make sure your customers get the benefit of Jenkins service by insisting that your men know and see the Jenkins Diamond mark on the valves they install.

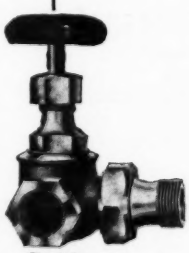


Fig. 176
Jenkins Right-hand Radiator Corner Valve

JENKINS BROS.

80 White Street . . . . . New York, N. Y.
524 Atlantic Avenue . . . . . Boston, Mass.
133 No. Seventh Street . . . . Philadelphia, Pa.
646 Washington Boulevard . . . . Chicago, Ill.

JENKINS BROS., Limited
Montreal, Canada London, England

Always marked with the "Diamond"
Jenkins Valves
SINCE 1864

This scientific test took Utilize the results

The American Brass Company has just completed a scientific investigation begun sixteen years ago, to determine the corrosion-resisting properties of various kinds of water pipe. The results of that investigation are now available to all master plumbers.

For ten years many different kinds of copper-zinc alloys were exposed to the action of extremely corrosive water. During all this time trained metallurgists observed the effects. Next, they spent six years in analyzing the data, checking results, and in making field tests.

Now we offer Anaconda 67 Brass Pipe and Anaconda 85 Red-Brass Pipe, described in this advertisement. One or the other of these tested brands will meet every requirement of domestic water service. Never before has such a *complete* and *scientific* service to aid in the selection of water pipe been available.

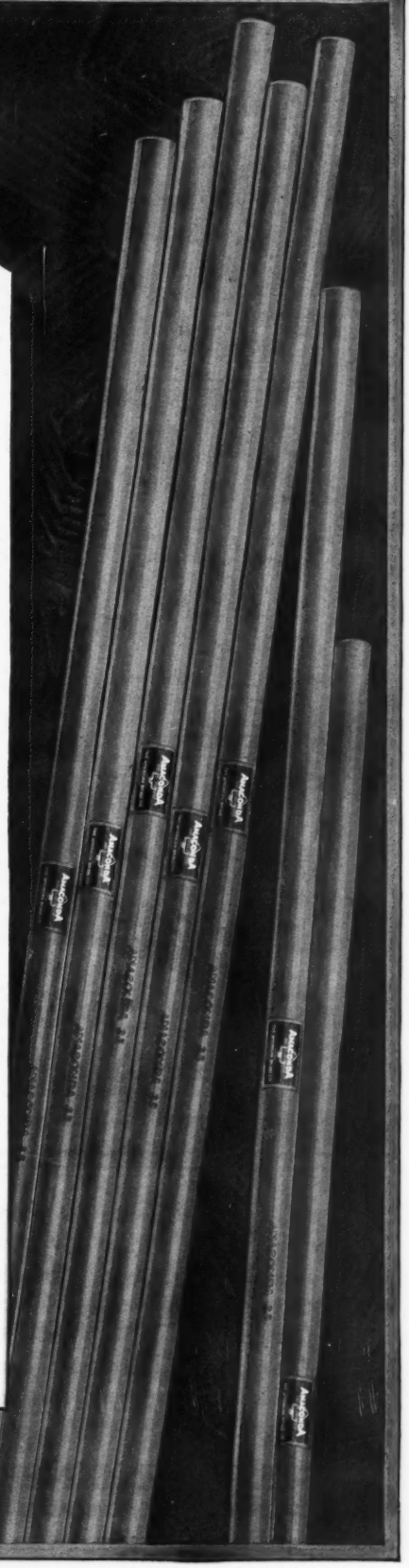
The Technical Department of The American Brass Company is prepared to cooperate in determining the character of the local water supply and to recommend the correct kind of Anaconda Pipe to use under specific conditions.

THE AMERICAN BRASS COMPANY
GENERAL OFFICES: WATERBURY, CONNECTICUT
Offices and Agencies in Principal Cities
Canadian Mill: ANACONDA AMERICAN BRASS LTD.
New Toronto, Ont.

ANACONDA

ANACONDA

16 years to complete in your community!



ANACONDA 67* BRASS PIPE
for *normally* corrosive waters

When normal water conditions prevail; that is, when waters are not drawn from peaty sources, shallow wells, tubular wells or filter galleries in lowlands along river beds, and where filtered waters are not of high permanent hardness, Anaconda 67 Brass Pipe is recommended for distribution lines. This pipe contains not less than 67% copper and is semi-annealed, seamless and guaranteed to be structurally perfect.

ANACONDA 85* RED-BRASS PIPE
for *highly* corrosive waters

For distribution lines carrying ground waters and colored surface waters, particularly when drawn from sources of peaty origin and mechanically filtered waters, which may be high in carbonic acid content and low in alkalinity and pipe-lines buried underground, Anaconda 85 Red Brass Pipe is offered as the best corrosion-resisting pipe commercially obtainable. Anaconda 85 Red Brass Pipe, containing not less than 85% copper, is semi-annealed, seamless and guaranteed.

• • •

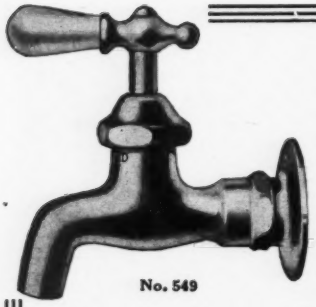
ANACONDA COPPER SERVICE TUBES
for use with compression fittings

Flexible copper service tubes for use with compression fittings are available in straight lengths up to 20 feet and in coils up to 60 feet. These tubes, which are deoxidized to increase corrosion resistance, can be connected directly with the corporation stop without a gooseneck and can readily be bent to avoid underground obstructions.

*The trademarks "67" and "85" are registered in the United States Patent Office.

BRASS PIPE

ANACONDA
from mine to consumer



UNITED
Sink Faucets

United faucets can be furnished with either plain or hose ends and all styles of interchangeable handles. The United line of enduring quality is complete—Built-in Bath and Shower Fixtures; staple plumbing, tubular Brass and water works Brass Goods.

United-Oberndorf Corp.
3844 Hamilton Ave.
CLEVELAND OHIO

UNITED

P.B.F.

EVERY FITTING
AIR TESTED
UNDER WATER

PHOENIX BRASS FDRY.
Irvington, New Jersey

Dole

Automatic
All Metal

Non-Adjustable
Thermostatic

SYPHON AIR VALVES

The Dole Valve Company, 1913-33 Carroll Ave., Chicago

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DOMESTIC ENGINEERING
1900 PRAIRIE AVENUE, CHICAGO, ILLINOIS

ORGANIZE CONNECTICUT OIL HEATING BODY

The Connecticut Oil Heating Association was organized recently at a meeting of oil burner dealers held at the Hotel Taft, New Haven, Conn. The new organization is to be affiliated with the American Oil Burner Association, the national body. The Connecticut association received a prominent start when W. J. Harter, manager of the dealer division of the national body, addressed the gathering. He spoke of the advantages derived from being linked together by nation-wide units. He gave a clear description of the activities of the body and pointed out vital factors in state organizations co-operating with the national body.

The new Connecticut organization adopted the proper legislation at a business meeting and elected the following officers: President, C. E. Harstrom of the Timken-Detroit Co., New Haven, Conn.; vice president, Edwin R. Schuelke of E. R. Schuelke, Bridgeport; treasurer, S. Kelman, Home Necessities Co., Inc., Waterbury; secretary, J. McCarten of the Providence Oil Burners, Inc., New Haven. C. R. Mance of the Kelvinator Co., Bridgeport, was named chairman of the membership committee to head assistants appointed in other cities of the state.

Odds and Ends

(Continued from Page 35)

by numerous cities as municipal law and it is to be added, that a number of other states and many cities and towns are preparing to adopt it.

Not All Plumbing Practices Can Be Right

Getting back to the letter from Mr. Deadwyler—he makes the point that not all the widely varying plumbing practices to be found in use in various sections can be right. He is certainly correct in this. Do you remember that in some tabulations that "Domestic Engineering" made a couple years ago, it was found that a city in California was allowing 800 fixtures to be served by a drainage stack of certain size, whereas a certain Pennsylvania city allowed something like 125 fixtures on the same stack?

That is, of course, a bad situation, but it is cause for great gratitude that the plumbing trade is fast working out of it, and into a situation that is based on scientific knowledge.

The letter states further: "I am sending you a sketch showing how our two-story residence plumbing system would be installed. The upper floor work could stand for a one-story cottage or bungalow. We limit the distance of a drum trap from its stack to five feet. We also permit a 4-inch stack to serve a ten-story building, with two lavatories on each floor, without re-venting."

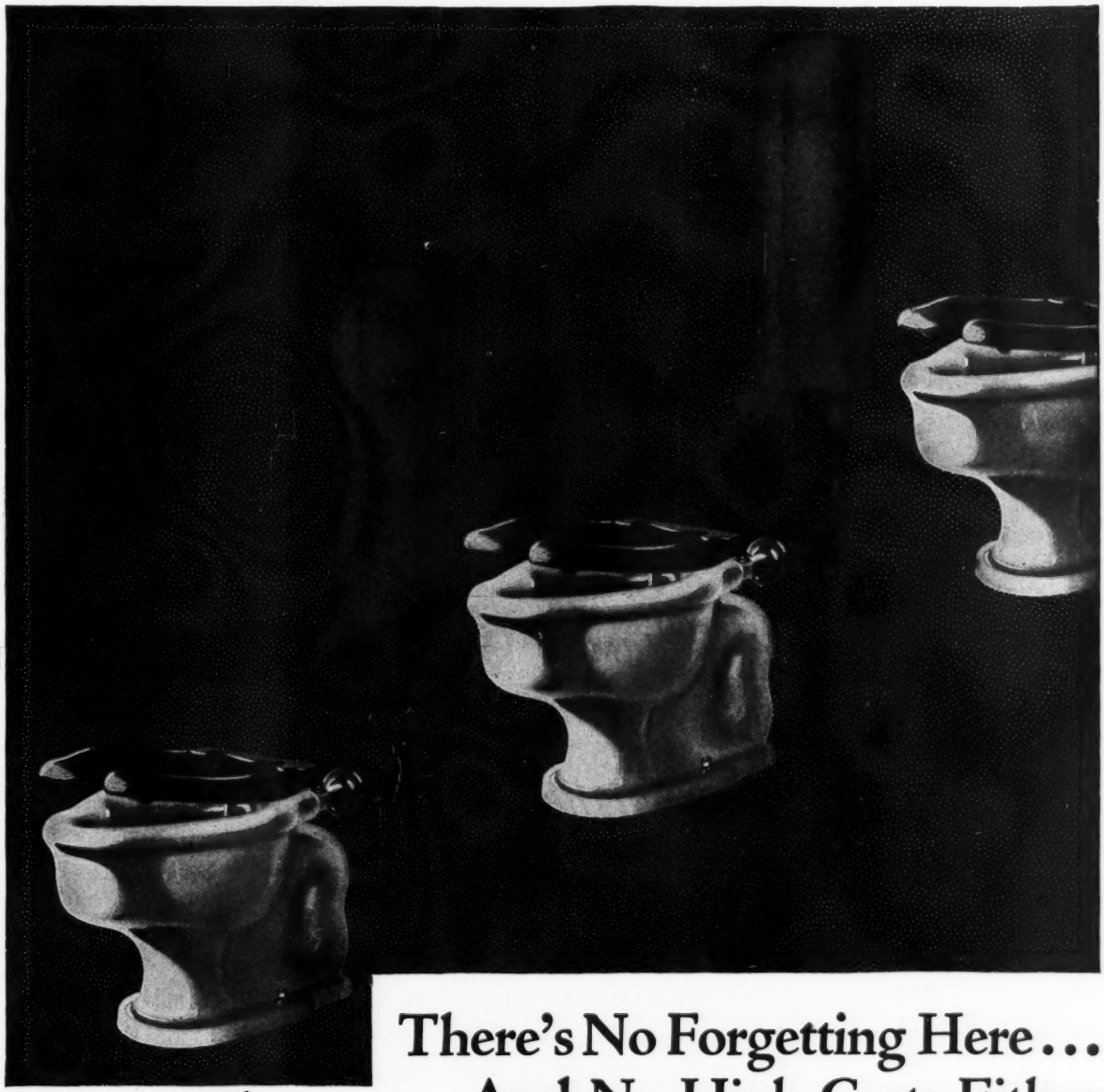
The residence work alluded to is shown in Fig. 11, and the 10-story lavatory job is shown in Fig. 12.

A note accompanying Fig. 11 states that "The sink waste must connect in front of the main waste, as we figure the 4 by 2 Y will stop up more quickly if placed in rear of stack."

While this precaution is taken to prevent stoppage, right on the same drawing we note two waste connections from other fixtures into a lead bend, which we would naturally think would lead to much greater danger of stoppage, a practice which many cities would not allow.

And so it goes—no two of us think alike on these things.

Referring to Fig. 12, we believe Atlanta, Ga., has a plumbing ordinance just about the same as this one, but that, taking the country as a whole, such practice is rather unusual.



There's No Forgetting Here... ...And No High Costs Either

Record No. 107
In 1906, 15 Clow Madden Automatics were installed. Today they are still in splendid condition. The janitor of this school states there has not been a repair necessary on any of these closets in the last 6 years. *Location: May Street School, Benton Harbor, Michigan.*

One, two, count them on your thumbs . . the moving parts to the Clow Madden valve. It has nothing to cause expensive repairs.

A quarter century or more is the average life of Clow Madden Automatics. (Read record No. 107). They ask about half the usual amount of water, less than half for repairs.

Clow Madden Automatics flush themselves every time, *every time.*

Dirty, unflushed closets are perilous. Dirty, unflushed closets are *never* Clow Madden Automatics. *They couldn't be.*

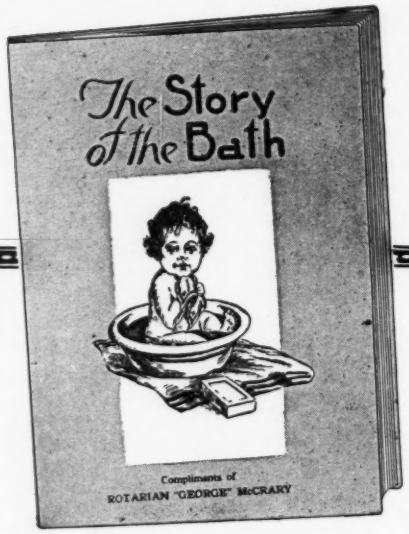
Three gallons of high pressure water scour the Clow bowl each time. Three gallons of water cleanse more thoroughly here than twenty sometimes do in other closet bowls.

May we send you a copy of the Clow School Plumbing Booklet?

James B. Clow & Sons, 201-299 N. Talman Avenue, Chicago

CLOW MADDEN AUTOMATIC

Forty-Eight Styles, Heights and Types to Meet Your Requirements



Here's the way "Rotarian George McCrary" gave

THE STORY OF THE BATH

*to Birmingham Rotarians**

WITH his compliments, "Rotarian George McCrary", of Birmingham, Ala., gave to his fellow Rotarians a copy of this little booklet which has done so much to educate the public as to the vital importance of the plumbing industry. If you want to put your industry on the map with your fellow Rotarians, Kiwanis, Lions, Boosters, etc., arrange to distribute "The Story of the Bath" at one of your luncheons. It will be inexpensive—and will yield splendid publicity.

** Paul Broome, Bradley Beach, N. J., and Ben Collier, Danville, Ill. have given their fellow Rotarians a treat.*

"Kiwanis" A. B. Hunt, of Williamsport, Pa., has followed suit. So has "Kiwanis" Ernest Demi of Philadelphia, Pa. So has "Kiwanis" Bill Blottman, Williamson, W. Va.

Ask for a free copy of "The Story of the Bath" and you'll see why Mr. McCrary gave it out

DOMESTIC ENGINEERING

1900 PRAIRIE AVE. :: :: :: CHICAGO, ILL.

THIS WEEK

AMONG MANUFACTURERS, WHOLESALERS AND SALESMEN

RE-AFFIRMS PIPE SCEDULE

The standing committee which has in charge the simplified practice recommendation on wrought iron and steel pipe has re-affirmed the existing schedule, without change, for the year beginning June 1, 1928, it is announced by the Bureau of Standards, Department of Commerce, Washington, D. C. A survey conducted prior to the revision meeting indicated that the average rate of adherence to S. P. R. No. 57, which governs these products, has been more than 95 per cent.

ACQUIRES TWO SUBSIDIARIES

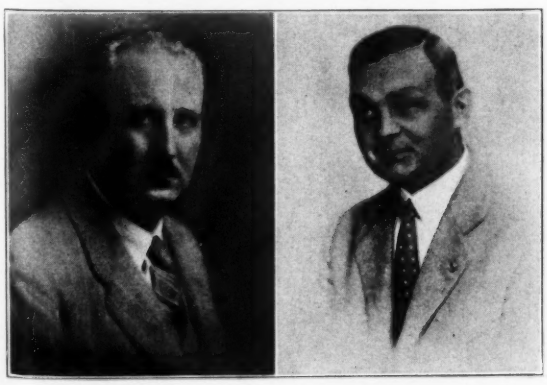
The American Radiator Co., New York City, announces that it has acquired the Locke Patten Works, Inc., of Detroit, and the Ypsilanti Motor Casting Co., of Ypsilanti, Mich. The two concerns had been engaged in making castings for the purchasing company for some time.

J. L. MOTT CO. TO OPEN TWO BRANCHES

Two branches are to be opened by divisions of the J. L. Mott Co., Inc., in the near future, it is announced. The Laib Co., Inc., division is opening a new branch at Lexington, Ky., and the Mott Southern Co., of Atlanta, is opening a branch at Knoxville, Tenn.

NEW FIRM TO ACT AS MANUFACTURERS' REPRESENTATIVES

Announcement is made of the recent formation of a new firm, known as Bookhout & Law, Inc., which has been established to act as manufacturers' representatives, selling through the wholesale trade. Headquarters have been established at 331 Madison avenue, New York City. The officers of the new company are very well known in the trade. Raymond G. Bookhout, the president, has been connected with the industry for more than 15 years, during which time he was in charge of the editorial departments of the Plumbers Trade Journal and Sanitary and Heating Engineering. John K. Law, the vice president, has also spent nearly a score of years in the business, beginning with the Philadelphia branch of Crane Co. For about 16 years he has been identified with manufacturers of toilet seats, and more recently also with the Blake Specialty Co., Rock Island, Ill.



Raymond G. Bookhout and John K. Law, president and secretary of Bookhout & Law, Inc.

The firm will retain the Blake line, and have also taken over the sale of water heaters made by G. & E. Co., La Porte, Ind. It will also represent the Stop-Plug Co., Chicago, the Spencer Regulator Co., Salem, Mass., Hall-Will, Inc., Erie, Pa., Electro Flushing & Mfg. Co., West Allis, Wis., Bell & Gossett Co., Chicago, Forest Mfg. Co., Hickory, N. C., and the Never-Rust Co., Harrisburg, Pa. Territory covered includes New York State, Northern New Jersey and Western Connecticut. Seven salesmen are now covering this section for the new company.

MOVES BOSTON OFFICE TO FACTORY

The Julian d'Este Company has moved its Boston office from 45 Washington street, North, to its factory, which for many years has been located at the corner of Cambridge and Spice streets, at Sullivan square, Charlestown, Mass.

ADOPT STAPLE PORCELAIN STANDARDS

A general conference was held in the Commerce building, Washington, D. C., on June 12, at which, after some discussion, a commercial standard for staple porcelain (all clay) plumbing fixtures as recommended by the advisory committee appointed for the purpose was adopted.

I. J. Fairchild of the Bureau of Standards, Department of Commerce, presided and, in an opening talk, comprehensively outlined the work in which his department of the government is engaged. This included a description of the methods by which the commerce department aids in eliminating waste at the instigation of an industry, one form of which is the reduction of types in the products of that business. Mr. Fairchild also went into detail on the certification plan which provides that producers rate the quality of their products.

George E. Hoffman, of the Trenton Potteries Co., chairman of the advisory committee, in introducing the recommendations of his group, explained that master plumbers and architects would be definitely interested in what had been attempted. Each manufacturer, particularly among those who specialize, had set up his own standards of types and these have now been condensed. Succeeding events proved that this work has been done to the satisfaction of the industry. Mr. Hoffman also pointed out that his committee had expended considerable effort, paying particular attention to the matter of culls, as consumers have had no guarantee as to quality.

Le Roy E. Kern of the American Institute of Architects, suggested that in grading only the defects allowable be listed, and these be minimized as much as possible so the impression may not be conveyed that the piece is full of blemishes. This was referred to the standing committee.

Mr. Hoffman pointed out that the tables were to be

accepted as a guide and it is hoped that a year hence the allowance of defects may be reduced. J. R. Parr, General Ceramics Co., made a motion, which was concurred in, that reference to unfilled fire checks be deleted from the tables, together with the fact that dunts are not allowed.

Miss Alice L. Edwards, American Home Economic Association, suggested that the attention of manufacturers in the future be given to the height of the working surface of sinks, as they are somewhat too low for most women to work over handily.

Mr. Hoffman brought up the question of "especially selected pieces," with the result that this term was eliminated on the motion of George H. Drake, chairman of the standardization committee of the National Association of Master Plumbers. Mr. Drake was frequently called upon to enlighten the conference through his practical knowledge of installation.

The recommendations, on the motion of Abel Hansen of the Fords Porcelain Works, were adopted, and the effective date for new production was tentatively set for July 1, 1929, while the date agreed on for the clearance of existing stocks was January 1, 1930.

Mr. Parr moved that the certification plan be adopted, and the conference decided in favor of this motion. It was also made a matter of record that the standing committee will meet annually one year after the effective date to delve into the matter of revision, their recommendations to be sent to manufacturers, wholesalers, master plumbers, and architects. This committee was named as follows: George E. Hoffman, Trenton Potteries Co.; R. T. Rock, standardization committee, National Association of Master Plumbers; George H. Drake, standardization committee, National Association of Master Plumbers; George Kumpf, Dimock & Fink Co.; Benjamin Cadbury, Hajoca Corp.; C. W. Fell, W. A. Case & Son Mfg. Co.; Le Roy E. Kern, American Institute of Architects; I. J. Fairchild, commerce department; Abel Hansen, Fords Porcelain Works. Mr. Fairchild pointed out the advisability of producers watching their statistics to learn the benefits of this work.

M. H. Bletz, Bureau of Foreign and Domestic Commerce, Department of Commerce, with the idea of ascertaining whether or not producers wanted to promote foreign trade, outlined how the government will aid by distributing in foreign countries translations of specifications for a sum covering the actual cost of printing, the manufacturers to supply the translated manuscript. This matter was referred to the advisory committee after Mr. Bletz had described the benefit in foreign sales expansions enjoyed by other industries which had through this avenue gone after trade abroad.

The following representatives and their connections were present at the conference:

J. F. Brady, Plumbers Trade Journal; George H. Drake, National Association of Master Plumbers; Miss Alice L. Edwards, American Home Economics Association; I. D. Foos, Ceramic Industry; Peter J. Furlong, Supervising Architect, U. S. Treasury Department; Abel Hansen, Fords Porcelain Works; Charles D. Harvey, Department of Agriculture; George E. Hoffman, The Trenton Potteries Co.; Le Roy E. Kern, American Institute of Architects; John M. Kreger, Woodbridge Ceramic Corp.; E. A. Maginnis, Standard Sanitary Manufacturing Co.; A. R. Mitchell, Beaver Refrigerator & Potteries Co.; J. R. Parr, General Ceramics Co.; Louis Probst, J. L. Mott Co., Inc.; James E. Ramage, Domestic Engineering; D. H. Sawyer, Associated General Contractors of America; C. B. Snyder, St. Elizabeth Hospital; Clifton C. Stackhouse, Panama Canal, Washington, D. C.; E. Harry Weisbrod, Department of Interior; G. W. Wray, Bureau of Standards; M. H. Bletz, chief, standard section, Bureau of Foreign and Domestic Commerce; I. J. Fairchild, Commercial Standards Unit, Bureau of Standards; S. F. Tillman, Division of Simplified Practice, Bureau of Standards.

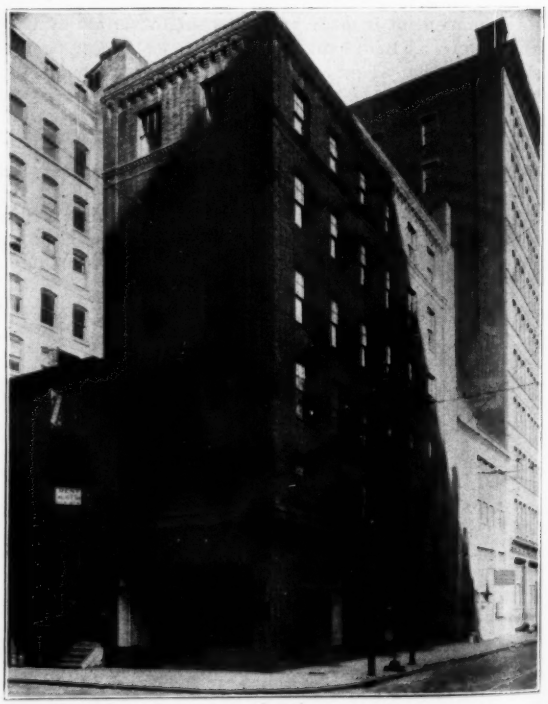
TO HOLD NIPPLE STANDARDIZATION CONFERENCE

Following a request from the Pipe Nipples Standards Corporation, a general conference of producers, distributors and consumers of pipe nipples has been called at Room 704, Commerce Building, 19th and Pennsylvania avenue, Washington, D. C., for Friday, June 29, beginning at 10 a. m., it is announced by the Bureau of Standards, Department of Commerce. At this conference, it is proposed to consider the standardization of steel and wrought iron pipe nipples, the recommendations for the former to be presented by Julian Armstrong and for wrought iron by C. T. Ressler.

MOVES INTO OWN NEW BUILDING

The York Heating and Ventilating Corp., engineers and manufacturers, has recently moved into its new six-story office building at Sixteenth and Sansom streets, Philadelphia. The ground floor is to be given over to stores, the balance of the corner lot building being occupied by the concern. The sixth floor is to be used as executive offices, and will be the headquarters of Thornton Lewis, the president. On the fifth floor will be the air conditioning department, managed by H. P. Gant, vice president. The engineering department is to be located on the fourth floor, and will be presided over by C. D. Graham, its manager.

The third floor has been selected as the site for the general sales department, with J. A. Carey, general sales manager, and D. E. French, manager of the heating department, in charge. The Philadelphia sales office is to be maintained on the second floor, R. S. Arnold managing this department.



The new building of the York Heating and Ventilating Corp., Philadelphia

FIRE VISITS PHILIP GOLLNER CO.

On Friday, June 15, the plant of Philip Gollner Co., 1838 West Thirty-third street, Chicago, wholesalers of plumbing and heating supplies, was swept by a fire which left in its wake damage estimated at around $275,000. The blaze started at about eleven o'clock in the morning and spread rapidly. One of the warehouses and the office were left intact, and although handicapped, the company is exerting every effort to take care of its customers as quickly as possible. Plans are now under way for a modern building to be erected on the site.

BROOKLYN JOBBERS COMPLETE NEW BUILDING

Edward Steinman Co., Inc., wholesalers of plumbing and heating supplies, has just completed its new building, located at 1144-48 Utica avenue, Brooklyn, between Beverly and Claredon roads. The company has in all 14,000 square feet of space and believes it will be able to more efficiently serve its trade. Edward Steinman, the president, announces the place at 2818 Church avenue, formerly operated as headquarters, will be run as a branch in the future.

WILL REPRESENT WEIL PUMP CO.

The Weil Pump Co., Chicago, Ill., has just announced the appointment of the following sales representatives: Allen Engineering Sales Co., Boston, Mass.; Bennett Sales Co., Shreveport, La.; Continental Sales Co., Minneapolis, Minn.; Charles Keuhrold, Milwaukee, Wis., and John B. Ketcham, Pumps, Inc., New York City.

WESTERN TRADE GOLF ASSOCIATION PLAYS WESTWARD HO

Westward Ho Golf Club was the scene of the summer's second tournament of the Western Trade Golf Association, Chicago, held on June 15. A crowd of 59, including members and guests, turned out to enjoy the perfect day and the interesting course at Westward Ho. As usual, a qualifying round of nine holes was held in the morning, and an eighteen-hole handicap event in the afternoon. Luncheon and dinner were served at the club.

President Thomas H. Monaghan presided over the evening meeting with the gavel won by the Western Trade Golf Association last summer in its tournament with the Michigan Trade Golf Association. It was fitting, therefore, to call upon the donor of the gavel, J. A. Galloup, a Western Trade member, of Battle Creek, who came to Chicago to play at this tournament. Mr. Galloup, who is always host to the Chicago and Detroit crowds at their annual tournament, announced that all arrangements were made for the contest this year, scheduled for August 16. A barbecue dinner will be served by William M. Byrd, also a Western Trade member, after the tournament.

President Monaghan was able to announce, also, that Captain Cutler had succeeded in lining up Calumet Country Club for the last tournament of the season, thus filling out the remainder of the summer schedule. The July tournament, on the twelfth, will be held at Glen Flora Country Club, Waukegan, Ill.; the August tournament, on the sixteenth, at Battle Creek Country Club; the September meet, on the twenty-first, at Glen Oak Country Club, and the October tournament, on the fifth, at Calumet.

Prize winners for the day were headed by E. W. Thomas, Jr., who was first in classes A and B, winning the association cup for the month and a silver water pitcher permanently. G. C. Vandenboom won the morning qualifying round, and chose a steak set for his prize. Second in classes A and B was N. Paul Fenner, whose prize was a silver bread tray. First in class C was J. E. McClellan, and second, Harry M. Hart, the prizes respectively being a belt and buckle and a knife. J. J. Haines won in

SEE OUR AD IN NEXT WEEK'S ISSUE

The BEATON & CADWELL MFG. CO.
Established 1894
NEW BRITAIN, CONN.

A SIGN OF THE TIMES

When you see the Ohio Brass trade mark you may know the product so marked is of the first quality.

Plumbing and Heating contractors are accepting O-B Valves as standard because they never fall down on the job.

Ask your Wholesalesman, He knows!

OHIO BRASS COMPANY
741V Mansfield, Ohio

Plumbers and Architects

Who are interested in QUALITY
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"Specify Wolff for Satisfaction"

WOLFF CO.
SUPERIOR PLUMBING FIXTURES
CHICAGO

IT PAYS TO BUY GOOD TOOLS

For Lower Threading Costs

Buy the New No. 11 or 11A Beaver. The biggest improvement in die stocks in 20 years. All leading jobbers carry them in stock.

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TIME and LABOR SAVING TOOLS

CLIMAX SPECIALTIES

Whatever the pipe, whatever the test, we build or will build a Climax Test Plug that will be safe, sure and easy to use at a minimum cost.

Use a Climax No. 1 Cellar Drainer on your next job. It will teach you new sump pumping economies.

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Southern Agents: J. M. BUTTS & CO., 733 Healy Bldg., Atlanta, Ga.
Pacific Coast Agents: WM. P. HORN CO., 58 Federal St., San Francisco, Calif.; 509 Wilcox Bldg., Los Angeles, Calif.; L. C. Smith Bldg., Seattle, Wash.
Philadelphia, Pa.: DERBYSHIRE & MACK, 923 Real Estate Trust Bldg.
New York City: A. W. DRAKE, 66 West Broadway
New England: ROBERT McKEOWN, JR., 46 Cornhill, Boston, Mass.

DONNELLY
PRESSURE RELIEF VALVES

The outside spring on the Donnelly Pressure Relief Valve does away with the possibility of spring corrosion, with the subsequent loss of tension and adjustment.

This Donnelly Valve is designed especially for basement system tanks, range boilers, storage heaters and closed plumbing systems.

It operates automatically when pressure becomes too great. It is easily and speedily adjusted to any required pressure. Your jobber will be glad to sell you.

DONNELLY MFG. CO.
29 Mills St., MALDEN, MASS.
Complete stock carried by
HENRY STEIN
50 Cliff St., New York City
New York and New Jersey Offices

class D, with Chas. E. Price runner-up. Haines chose a steak set and Price a mayonnaise dish.

The guest prize was won by H. J. Bradley, whose gross 82 tied the amateur record of the course. J. T. Fitzsimmons won the blind bogey prize, a silver tray. The duffer's cup went to R. J. McKay.

Scores for the day were as follows:

Players	G.	H.	N.	Players	G.	H.	N.
O. H. Theleen....	99	19	80	T. Fairbanks (guest) 104			
H. W. Evans.....104		22	82	M. S. Good.....103		28	75
J. V. Brunner....105		26	79	J. H. Milliken....	96	14	82
N. P. Fenner.....	85	14	71	J. H. O'Brien....	91	19	72
J. A. Ljunggren..109		30	79	J. A. Cutler.....	89	15	74
H. Wolter (g'st).	99			H. M. Hart.....	92	21	71
F. C. Staples.....113		30	83	J. J. O'Shea.....104		22	82
R. E. Moore.....	95	25	70	Geo. Tebbetts (guest)	89		
G. C. Vandenboom	92	21	71	C. E. Beery.....105		22	83
H. J. Bradley (guest)	82			F. Hoyt (guest)..	99		
M. W. Maloney..	99	23	76	L. J. Pitcher.....	95	11	84
C. F. Olsen.....	89	9	80	J. A. Galloup....	92	20	72
F. Hays (guest).109				H. E. Crum, Jr..102		22	80
H. G. Thomas....	94	18	76	A. Hanze (guest).133			
J. J. Haines.....	99	29	70	W. E. Foskett...109		22	87
J. E. McClellan..	88	18	70	E. W. Thomas, Jr.	79	12	67
J. V. Liddy.....107		30	77	W. H. L. Smythe (guest)	83		
F. J. Cushing....104		24	80	R. J. McKay.....136		30	106
L. W. Charlet....116		30	86	J. H. Beall (g'st).	96		
H. Burt (guest).118				A. P. Campbell...	94	16	78
W. A. Taylor....102		19	83	Wm. Thumm 119		30	89
W. S. Crosby (guest)	88			B. Drollinger (guest) 110			
C. E. Price.....101		30	71	L. Drollinger (guest)	90		
M. G. Henderson.	95	23	72	W. McGee (g'st).	92		
T. W. Snelling (guest) 117				E. H. Christiansen	82	6	76
J. T. Fitzsimmons.103		28	75	E. Schreik (g'st).	94		
Chas. Thumm (guest) 102				H. Afton (guest).148			
C. W. Brigham..107		22	85	A. Kroeger 108		21	87
A. Norman	83	2	81	L. Wevang 101		17	84
T. H. Monaghan.102		30	72				

METROPOLITAN TRADE GOLFERS DEFEAT DELAWARE VALLEY ASSOCIATION

Thursday, June 14, was a day of fog, of humidity, of blistering sunshine, of pouring rain, and of swooping winds. It was also a day of sunburn, of flubbed golf shots, of perspiration, and of soaked clothing and rust specked golf clubs. This was the setting for the annual dual meet of the Metropolitan Trade Golf Association, made up of trade golfers from the neighborhood of New York, and the Delaware Valley Trade Golf Association, whose members come from the Philadelphia-Baltimore district. The scene was the Trenton Country Club, Trenton, N. J.

The course is not an exacting one, but it holds many pitfalls for the unwary, and, under the conditions, many high scores were turned in. However, it was possible to get close-to-par figures, as shown by the feat of T. A. Johnson, New York manager of the J. D. Johnson Co., Inc., and captain of the Metropolitans, who shot the 18 in a gross 74, three over par. It developed that Mr. Johnson's team also took honors in the team match with their opponents from the Delaware section.

Fred Allen of Trenton Potteries Co.; Thomas Dawson, Crane Co.; J. F. Murphy, Sloan Valve Co.; John Weil, New York master plumber; Henry Garrity, Trenton Potteries Co. Photos taken at recent meet of Metropolitan Trade Golf Association

Under the system of play, each association had its members shoot 18 holes for medal scores during the morning for prizes, and then the figures turned in were used as a basis for the matches in the afternoon, those golfers on each team whose gross figures came the closest to matching being pitted against each other. At luncheon, a delicious cold spread had been prepared, and there was dinner in the evening, with the respective captains announcing the winners in each association.

Captain Johnson took first prize among the New Yorkers, his 9 handicap giving him a 65 net. Second and third prizes were divided between Edward Keating, Henry Letcher and Philip J. Platt, with net 70's, and there was a four-cornered tie between Charles Wall, Joseph Woods, W. H. Oleson, and William J. Bapst, each of whom had a net 71. L. Power and Henry Garrity each had one stroke more, ending the prize winners.

Captain Robert Savill of the Delaware Valley crowd did not announce the scores of his winning golfers, but the winners, in order, included William McPhail, Ray Bolsinger, Harold Deacon, Thomas Liggett, E. S. Aitkin, A. V. Gemmill, William Tomlinson, William G. Brewton, Mr. Savill, A. Greenwood, William Kerr, Herman Kleinman and John Bitzer.

HEATING AND VENTILATING GOLF ASSOCIATION ENTERTAINS HEATING CONTRACTORS

The Heating and Ventilating Golf Association of Philadelphia moved the date of its June meet up to June 7 in order to play host to the members of the Heating and Piping Contractors National Association who attended the annual convention of the latter organization in Philadelphia that week. The meet was held at the Manufacturers Country Club, and a large attendance was on hand. Ray Bolsinger, secretary of the golf association, was in charge of the arrangements for the meet, and also planned a card party and dinner for the ladies which were also held at the same club that day.

R. G. Savill and W. G. Brewton tied for the H. J. Carr Trophy Cup. The list of prize winners included: N. L. Danforth, E. Williams, R. A. Wolfe, A. W. Dovel, F. Landes, David Flemming, John F. Hale, W. G. Fraser, Lee Nusbaum, E. J. Meloney, R. G. Savill, C. W. Stewart, Donald Smith, Lester Daub, Thomas Cooper, William G. Brewton and H. J. Carr.

The scores were as follows:

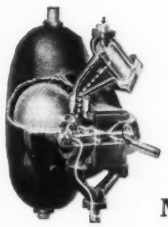
Name	G.	H.	Net	Name	G.	H.	Net
R. G. Savill.....	97	10	87	Mrs. R. J. Tropf.	145	60	85
J. J. Findison....	108	22	86	E. H. Beling.....	128	38	90
H. A. Horst.....	104	25	79	J. B. Garfield....	82	0	82
C. A. Horst.....	109	25	84	H. D. Jackes.....	117	20	97
W. Webster, Jr..	113	17	96	E. Crutchley	108	15	93
R. S. Franklin...	91	15	76	J. S. Hemphill...	95	15	80
R. A. Wolfe.....	98	14	84	W. H. Murphy...	107	35	72
J. F. Tuttle.....	101	12	89	A. W. Dovel.....	109	45	64
R. E. Jones.....	135	55	80	D. W. Haire.....	112	40	72
E. Black	116	23	93	M. F. Blankin...	87	10	77
Lester Daub	103	20	83	R. Kauffman ...	140	45	95
C. F. Thompson..	98	18	80	B. Kauffman	181	100	81
C. W. Keppel....	111	20	91	Lee Nusbaum ...	111	23	88
W. G. Brewton..	114	22	92	Joseph Luke	94	19	73
Thomas Jones ..	118	18	100	Don Smith	108	22	86
F. Eckfeldt	119	35	84	W. J. Robelen...	109	28	81
F. Landes	138	47	91	John Young	108	26	82
E. Williams	122	37	85	George Hughes..	106	28	78
W. F. Bilyeu....	102	23	79	B. Sheldrake	99	20	79
W. J. Osborn....	96	17	79	Wm. Hughes	100	22	78
David Flemming.	100	20	80	E. J. Meloney....	115	28	87
H. J. Carr.....	107	25	82	A. McClintock...	110	18	92
T. W. Cooper....	89	7	82	Jason Hurley....	104	14	90
H. W. Gundel....	114	20	94	Geo. Kitson	112	32	80
R. W. Barcus....	96	20	76	N. L. Danforth...	101	13	88
R. E. Warden....	95	18	77	John F. Hale....	124	30	94
C. V. Haynes....	112	20	92	J. A. Cook.....	109	27	82
C. W. Stewart...	107	20	87	Mrs. J. A. Cook..	126	45	81
R. J. Tropf.....	114	30	84	E. Ellis	103	5	98

TABASCO [Hot Stuff]

Steel Water Heaters Heat Twice as Much

KEWANEE BOILER CORPORATION
Kewanee, Illinois

A stitch in time



An ounce of McDonnell & Miller prevention is usually worth about 100 pounds of replaced boiler sections say nothing of labor costs. Let us send bulletin describing the *only self-cleaning Duplex Feeder.*

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400 N. Michigan Ave., Chicago
Self-Cleaning Duplex Feeder

Haas

Flush Valves for use in combination with all styles of bowls for all classes of service to operate under low or high pressure water supply

Water Closets for every type or class of service.

Frost Proof Closets. Direct flush or after flushing.

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The Flagg Trade Mark on Fittings is the sign of the quality that comes with years of fitting manufacturing experience.

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1421 Chestnut St., Philadelphia, Pa.

MODINE MFG. CO. ANNOUNCES 8 NEW REPRESENTATIVES

The Modine Mfg. Co., Racine, Wis., recently announced eight new representatives. They are W. B. Irwin Co., 1020 Mercantile Bank building, Dallas, Texas; George W. Herlin, 401 North Santa Fe street, El Paso, Texas; English & Lauer, 1224 South San Pedro street, Los Angeles, Calif.; Harry K. Mead, Board of Trade building, Portland, Ore.; John B. Groseclose, 206 Builders Exchange building, San Antonio, Texas; E. H. Goins, 401 Sharon building, San Francisco, Calif.; Crane Co., 307 West Second street, South, Salt Lake City, Utah; Howard H. Fielding, 1226 California street, Denver, Colo.

Obituary

Frank C. Bradbury

Frank C. Bradbury, assistant general manager of sales, Crane Co., Chicago, died at the Presbyterian Hospital on Friday, June 15. Mr. Bradbury was born at Bridgeport, Conn., October 29, 1875, and had been with Crane Co. for about seventeen years. He had been ill for some time before his death, suffering from an intestinal disorder. Before joining Crane Co. Mr. Bradbury was with the Harry Murphy Co., Philadelphia, Pa., consulting engineers. He was a member of Riverside lodge, No. 862, A. F. & A. M. Surviving him are his widow, Carrie Landon Bradbury, four sons and two daughters.

Gustav H. Koven

Gustav H. Koven, president of L. O. Koven & Bro., range boiler manufacturers of Jersey City, N. J., died Tuesday, June 12, of an embolism, following an intestinal operation two weeks previous. Mr. Koven was in his 56th year, and is survived by his widow and two sons, Theodore J. Koven and Gustav H. Koven, Jr. Besides being president of the range boiler firm, Mr. Koven was president of the International Overseas Corp., vice president of the Hoboken Home Savings Bank, a director of the Trust Company of New Jersey, and an officer in several other corporations. He was president of the Rockaway Country Club, Denville, N. J., a vice president of the Jersey City Chamber of Commerce, a director of the Jersey City Y. M. C. A., and a director of the Jersey City Boy Scout Council. Burial was at Fairview cemetery, Fairview, N. J., on June 15.

Eli B. Doolittle

Eli B. Doolittle of the Richardson & Boynton Co., died recently at his residence, 542 Webster avenue, New Rochelle, N. Y. He was in his eighty-first year. He became associated with the Richardson & Boynton Co. in 1876 and remained the remainder of his life. For many years he traveled in New York, New Jersey and New England, and was well known in the trade. He is survived by his widow, a daughter and two sons, Elmer and Albert.

Joseph Wellings

Joseph Wellings, treasurer of the Yonkers Plumbing Supply Co., Yonkers, N. Y., passed away recently from hardening of the muscles of the heart. Mr. Wellings, who was in his 55th year, had been ill for about a month, and had not been in good health for some time. He had been identified with the plumbing and heating trades most of his life. For the past 15 years he had been with the Yonkers wholesalers and before that was for many years with the Dimock and Fink Co. He is survived by his widow.

Samuel K. Chamberlin

Samuel K. Chamberlin of R. Estabrook's Sons Co., Boston, Mass., died on May 20, according to an announcement from that company.

Penobscot Building, Detroit, Mich. Architects — Smith, Hinchman & Grylls. Advisory Archs.—Donaldson & Meier. Plumbing Contractor — Harrigan & Reid.

Selected for Performance

Building after building the country over is being piped with Youngstown Steel Pipe because of its lasting performance. Plumbing and heating contractors *know* that a Youngstown piped job is the best assurance against pipe failures. They know that the pipe itself is of the finest grade of steel—strong, true in its shape, uniform in every length, and cleanly and accurately threaded to make its installation easier and faster.

By installing Youngstown Steel Pipe you are assuring your customers a job that will be satisfactory from the start—and a pipe installation that will be truly permanent.

THE YOUNGSTOWN SHEET AND TUBE CO.
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YOUNGSTOWN

NEW ENGLAND GOLFERS HOLD JUNE MEET

The New England Metal Products Golf Association held its second meet of the season at the Charles River Country Club at Newton Center, Mass., on June 7. It was a fine day and the meet was a success in every way.

After dinner there was a business meeting at which the newly elected president, Herbert Nickerson, presided. The following new members were introduced: Walter F. Rice, of Tucker & Rice, Worcester, Mass., and George Phillips, president of the Phillips Lead & Supply Co., Providence, R. I.

It was voted to increase the membership of the association from 45 to 50 members and to revise the by-laws. This action will take place at the next meeting. It was also voted to increase the initiation fees to $15.00 and to increase the yearly dues to $10.00.

Personal Mention

John A. Campbell, president of the Trenton Potteries Company of Trenton, N. J., has been elected president of the United New Jersey Railroad & Canal Co.

Walter J. Kohler, president of Kohler Co., Kohler, Wis., was a delegate to the recent Republican National Convention in Kansas City, Mo., and flew to that city in his new airplane, making the trip in six hours.

Clarence M. Woolley, chairman of the board of directors of the American Radiator Co., delivered the commencement address at Colgate University, Hamilton, N. Y., on June 11.

George H. Laib, president of the J. L. Mott Co., Inc., Trenton, N. J,, recently returned from a visit to Hot Springs, Va.

E. R. Harding, of Greensboro, N. C., has been appointed representative of the Kewanee Boiler Corp., Kewanee, Ill., in the state of North Carolina. He will make his headquarters in the Jefferson-Standard building, in that city. Mr. Harding was formerly engaged in the heating contracting business in Greensboro, and was active in association work. He is a past president of the North Carolina Association of Plumbing and Heating Contractors.

E. R. Harding

W. L. Ticer, heating engineer at 1707 Eye street, Washington, D. C., has been appointed sales representative for the Gorton Heating Corp. of New York City in the District of Columbia territory.

E. M. Findley, formerly a factory representative of the Hoffman Heater Co., Louisville, Ky., has joined the sales force of the Ohio Heater Co., Columbus, Ohio, and will do sales promotion work among the master plumbers in Central Ohio.

Herman W. Steinkraus, who has been manager of the Cleveland, Ohio, office of the Bridgeport Brass Co., has been promoted to general sales manager of the company, it is announced. Mr. Steinkraus will make his headquarters at the company's main office in Bridgeport, Conn.

Raymond Fink, general manager of sales of the United Plumbers Supply Co., New York City, has been elected second vice president of the company, and will have charge

Watrous

Patent Plumbing Fixtures and Duojet Water Closets

A LINE representing the most advanced ideas in sanitation. Economy of operation and ease of installation. Duojet Closets—Flush Valves—Self-Closing Basin Cocks—Combination Lavatory Fixtures—Pop-Up Wastes—Liquid Soap Fixtures, etc.

Manufactured and Sold Exclusively by

THE IMPERIAL BRASS MFG. COMPANY

1231 West Harrison St. CHICAGO

YOUR FITTING PROBLEM IS SOLVED *when you say*

"SQUARE GEE'S"

SQUARE Pipe

"GEE" Fittings

DRAINAGE, BRASS

MALLEABLE, CAST IRON

THE GRABLER MANUFACTURING CO., CLEVELAND, OHIO

and its subsidiary GRABLER-REPUBLIC, Inc.

San Francisco • Los Angeles

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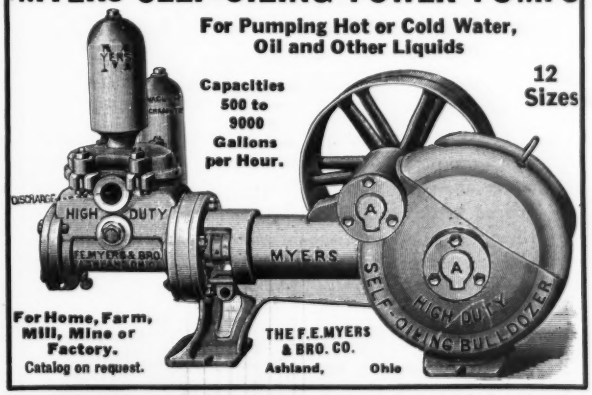
MYERS SELF-OILING POWER PUMPS

For Pumping Hot or Cold Water, Oil and Other Liquids

Capacities 500 to 9000 Gallons per Hour.

12 Sizes



For Home, Farm, Mill, Mine or Factory.

Catalog on request.

THE F.E.MYERS & BRO. CO.

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HERMAN KROUNER

Plumber, Albany, N Y.

Say:

"I have installed EverHot GasWater Heaters for some time and find them perfectly satisfactory. They are economical and the water is always hot. My customers are satisfied and recommend them."

$66 to $145

EverHot Heater Co.

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Branches and Sales Offices in 44 Cities in United States and Canada

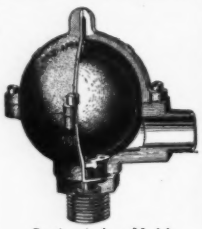
He's "stuck"

A Red Top Relief Valve won't "stick" the plumber. It is simple in construction and operation, and has no complicated parts.

Being made of non-corrosive metal throughout, a Red Top won't stick at the seat. The only way it *does* stick is to stick in the service of the home owner year after year and provide him with positive protection against boiler explosions and other ruptures.

Red Top Model No. 1 protects domestic hot water supply, while Model No. 2 is installed as the basis of a highly efficient system of hot water heating.

Send for descriptive folder.



Sectional view, Model No. 1 for domestic hot water supply systems.

Neptune Meter Company
50 E. 42nd St. New York City, N. Y.
Branch Offices in Principal Cities

Red Top Relief Valves

Every rural woman wants Running Water

IN every village home, in every farm house, is a woman who wishes every day that her home had running water and the comforts of plumbing. The time has arrived when you can tell her that she can easily have them, and show her husband that it will prove a profitable investment. Crane Automatic Water Systems now provide complete, dependable water-works for virtually any home anywhere, at a cost less than city dwellers pay. Write for the new Crane book, A. D. 9-R, *Crane Automatic Water Systems*, illustrating and describing the complete line of Crane systems. Let us send you dealer discounts.

Deep Well System No. 850

Pumping water from depths down to 250 feet and storing it under pressure to supply running water to farm and suburban homes. Made in all sizes and capacities.

CRANE

CRANE CO., 836 S. MICHIGAN AVE., CHICAGO, ILL.
Branches in all principal cities

of all plumbing and heating sales, it is announced by that organization. Mr. Fink, who has been with the company for approximately a year, has had a long and varied experience in the plumbing and heating trades.

Myron W. Tomback, who recently graduated from New York University, is now the head of the accounting department of the 18th Avenue Plumbers Supply Co., wholesalers of Brooklyn, N. Y.

Edward Looker

Edward Looker resigned recently from his position as manager of the West Coast branch of the Plumbing and Heating Industries' Bureau at San Francisco. Mr. Looker has been prominently identified with the industry for a number of years, his activities having proved of marked assistance to the plumbing and heating world in the Pacific states. His first association in this direction was when the California Sanitation Development League secured his services in January, 1924, as executive secretary. In addition to his promotion work with the league, he took an active part in the organization and direction of various bookkeeping classes in cities in and about the San Francisco Bay region.

During recent months he has been an active figure in securing a West Coast branch of the bureau, not alone in an executive capacity, but in the direction of actively taking part in the campaign to raise funds for the new branch, as well.

Mr. Looker expects to resume his professional accounting work in San Francisco, having had a wide experience in such work for the past eighteen years. He was graduated from the University of Michigan in 1910 with the degree of C. P. A.

New Trade Literature

Circular of McDonnell & Miller

McDonnell & Miller, of Chicago, are distributing a circular describing their self-cleaning duplex boiler feeder. A large illustration and diagram accompanies the technical description, and points out the various parts, such as the rotary overflow valve, overflow valve chamber, connection to sewer, supply valve chamber, rotary supply valve, etc.

Dayton Pump & Mfg. Co.'s Broadside

Dayton Pump & Mfg. Co., of Dayton, Ohio, is sending out a broadside in celebration of its twentieth anniversary. The circular invites the dealers to share in the company's birthday cake of profits, and describes the sales policy and dealer helps of the concern. Illustrations include reproductions of many advertising folders, cuts of pumps, and water softeners and a colored cartoon showing the need of a water system on a farm, where radio, automobile and electric lights have already been introduced.

Catalog of Wolff Co.

Wolff Co., of Chicago, has issued a new general catalog "G" of its plumbing fixtures. The catalog consists of more than two hundred pages, 8½ by 10½ inches, printed on highly glazed paper with handsome imitation-leather cover of blue and gold. The shades in which the company furnishes colored enamel are illustrated in colors. The catalog is divided into three sections, the first devoted to sanitary enameled ware, the second to sanitary earthenware,

and the third to plumbers' brass goods. Built-in bath tubs, lavatories, drinking fountains, kitchen sinks, factory sinks, laundry trays, water closets, urinals, shower bath equipment, faucets, lavatory supply pipes and drains, etc., are among the articles listed. Each of the three sections is separately indexed, and information in regard to ordering is also given.

Circular of Taber Pump Co.

Taber Pump Co., of Buffalo, N. Y., has just issued a bulletin, "Sew-628," dealing with pumps for handling sewage. Single and duplex units are described, and sectional views of the general assembly of these pumps are also given. The last page of the bulletin is devoted to rating tables and a simple form of specification.

Describes New Type Valve

The Belknap Mfg. Co., Bridgeport, Conn., has recently issued a four-page folder describing the company's type M valves, designed for control of steam, gas, oil and other products. Illustrations show the valves in both exterior and sectional views, and give specifications for the various types.

June 20, 1908

On June 18 the National Association of Master Steam and Hot Water Fitters held its twentieth annual convention. The Hotel Brunswick at Boston was the scene of the sessions. Many of the members attended the match between the Eastern Trade Golf Association and a picked team from the National Association of Master Steam and Hot Water Fitters. New officers elected were: John T. Sadler of Elmira, N. Y., president; James M. Healy of Indianapolis, Ind., vice president; W. J. Baldwin, Jr., of New York City, treasurer; John C. F. Trachsel of Philadelphia, sergeant-at-arms.

———1908———

The annual outing of the Cincinnati, O., Master Plumbers' Association was held on Saturday, June 13, at the Country Club grounds, at Carthage, Ohio. A large crowd was in attendance, and a baseball game between the supply houses and plumbers was one of the principal diversions.

———1908———

Past President David Craig of the National Association of Master Plumbers states that very satisfactory progress is being made in perfecting the arrangements for the entertainment of the delegates and guests to the national convention of that association.

———1908———

The National Association of Brass Manufacturers held its semi-annual meeting at the King Edward's hotel in Toronto, Ont., on June 9 and 10. The next meeting is scheduled for Detroit.

———1908———

The United States Radiator Co., of Dunkirk, N. Y., has increased its capital from $300,000 to $400,000.

———1908———

The Illinois Chapter of the American Society of Heating and Ventilating Engineers has made arrangements to go to the summer meeting of the Society at Niagara Falls by boat, accommodations having been secured on the "Northland."

Are You Afraid to Gamble Your Dollars ?

MAYBE you feel that the oil burner salesmen crowding into your shop day after day are *too willing* to ask you to gamble on their burners with your money.

The elements of chance in the oil burner field are two: (1) burner design, and (2) service. These two risks *do not* enter into Caloroil. Out of all the field, Caloroil is the *only* burner with vacuum feed. If you do not understand how vacuum feed avoids burner trouble we will be glad to show you the proof.

Out of all the field, Caloroil is the only burner that has no parts catalog, because none is needed. Dealers who have hundreds of Caloroil installations out say that their total monthly service call cost is less than their average telephone bill.

There is no gamble on the amount of public interest in oil burners or in the public's demand for oil generated heat.

If you want to gamble, pick a game you enjoy, like poker or pinochle. If you *don't* want to gamble, but want to make a steady income supplying the demand for dependable oil burners, you aren't taking any chances by just getting the facts about Caloroil.

Once you have the truth it is easy to make up your mind. Coupon below makes it easy to get the facts. Mail it today.

CALOROIL BURNER CORP.
225 West 34th Street
New York City

Caloroil
THE LIFETIME BURNER

CALOROIL BURNER CORP.
(DEPT. 23)
225 West 34th St.,
New York City.

Send along the facts.

NAME.....

FIRM.....

CITY.....STATE.....

LOW PRESSURE AEROFIN up to 50 lbs. gauge steam Tube-Plate Construction

Whatever you've wished for in a Fan System Heating Surface you'll find in Aerofin!

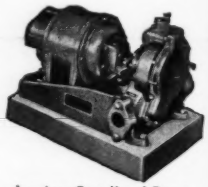
Non-Corrosive—Compact—Lightweight
Encased Units, installed quickly and cheaply

Bulletins upon request to Aerofin Corporation, 750 Frelinghuysen Ave., Newark, N. J.

25 to 350 lbs. gauge steam Continuous Seamless Tubes HIGH PRESSURE AEROFIN

JENNINGS Centrifugal Pumps are supplied for (a) circulating hot and cold water in apartment houses, hotels, hospitals, etc., (b) boosting water pressure to supply top stories in tall and even moderately high buildings, (c) promoting circulation in pressure hot water heating systems, (d) circulating water to and from swimming pools.
Capacities up to 1000 g. p. m.; pressures up to and exceeding 100 lbs.

Write for Bulletin No. 52



Jennings Centrifugal Pump

NASH ENGINEERING CO.
41 Wilson Rd., So. Norwalk, Conn.

Jennings Pumps

CAPI[TOL]

Capitol radiator valves and elbows are now equipped with—

UNION NUTS of *FORGED BRASS*

— they have double the tensile strength of the ordinary cast brass nut.

CAPITOL BRASS
DIVISION OF MICHIGAN SMELTING AND
MANUFACTURERS OF BRASS VALVES, BOILER TRIMMIN

DETROIT, MICH.

BURNHAM
Catalog No. 67

The handy handbook of boiler information, including radiators, tanks and supplies.
Write for your copy.

Representatives in all principal cities of the United States and Canada.

Burnham Boiler Corporation
Irvington, New York.

Markets

(Continued from Page 56)

approximately five points during the week. No delivery delays are encountered.

Steel Pipe

Current consumption requirements are necessitating the maintenance by distributors of substantial assortments of all sizes, which improved demand substantiates reports received from the majority of mill salesmen of increased receipts during the past fortnight. Future delivery commitments by distributors are in the minority. Makers' prices are unchanged. Prompt shipments may be had.

Wrought Iron Pipe

Contracts let during the week and those on the verge of being let indicate a well sustained degree of activity in the wrought iron pipe market. Distributors' sales, both direct-to-job and over-the-counter, show a perceptible improvement. Makers are offering deliveries immediately upon receipt of orders. Mill prices and those of their distributors have undergone no change.

Fittings

Demand for most all classes of fittings moved upward during the past seven-day period. This was partly due to quickened consumption needs, but mostly to price advances announced by manufacturers. Cast iron, malleable and drainage fittings were advanced 5 per cent and some makers of brass fittings also advanced their prices. Wholesalers anticipated future needs in such measure as to grant most makers an exceptionally good volume of business. No delivery extensions are encountered.

Enameled Ware

Records of enameled ware shipments into this territory during the week just passed confirm the formerly entertained beliefs of manufacturers that demand would have attained a comparatively good level as summer approached. Jobbers have been increasing their inventories in the anticipation of securing a good portion of the large number of jobs which they had previously quoted on. An approximate 15 per cent reduction in prices of sink and tray combinations was made by producers and wholesalers. Prices on other products were not affected. Deliveries are being well executed.

Pottery

Movements of special pieces, intended for definite operations, continue to sustain potters' interest. While there are some old contracts for staples not yet expired on makers' books, potters have entered during the past two or three weeks substantial future delivery orders of wholesalers. The latter state that their dispositions of staple ware are quite satisfactory for this period of the year. Makers' prices are firm and remain unchanged. No delays in shipments are noted.

Plumbers' Brass Goods

The majority of brass manufacturers are presently being accorded satisfactory volumes both in cast and tubular brass goods classes. By far the larger portion of forwardings consist of releases on old contracts, with a reported increase in jobbers' inclinations to specify for future needs more heavily than they have been in the past. Makers are in position to quickly fill their customers' requirements. No price changes have been effected by producers.

Range Boilers

The tonnage of galvanized range boilers moving into distributors' warehouses continues to be fairly heavy, according to makers' representatives. Production is still maintained at a comparatively rapid rate. Jobbers' stocks of the popular small size are adequate. No delivery delays are reported. Producers' quotations are unchanged.

Boilers and Radiators

The outstanding development of the week was the announcement by makers of a 5 per cent advance in prices of boilers and 10 per cent on radiation. The new sheets became effective June 18, and at the time many manufacturers were still busy working on business booked when radiation was advanced 5 per cent on May 22. Deliveries are prompt.

PACIFIC COAST

Trading Is Seasonal—

Coast business continues at an even pace with the demand for materials better in some sections than in others. On the whole, a substantial amount of business is being done. Distributors generally are keeping their stocks at a good working level and replacing merchandise in about the volume of sales.

Soil Pipe

Little change was noted during the week in the demand for soil pipe, which continues to be mostly in small lots for immediate delivery. On the whole, the total tonnage being consumed on the Coast at present is of fair volume.

Distributors' prices to the trade are based on the lowest price offered by foundries during the year and remain unchanged. During the week the steamship companies announced a reduction of two dollars a ton in freight rates from Gulf ports to the Pacific Coast, effective July 1.

Steel Pipe

Steel pipe continues to move in moderate volume which hardly seems to change from week to week. There are many distributors of steel pipe on the Coast, most of whom have well balanced stocks and practically all of the trade's requirements can be filled without delay. Distributors' prices remain unchanged.

Enameled Ware

Most enameled ware moving at present is for work contracted for earlier in the year, and while the total tonnage is not as great as last year still it is of good volume. Distributors generally have well assorted stocks and nearby factories and manufacturers' warehouses are in a position to make prompt deliveries. Prices remain unchanged.

Pottery

A moderate demand for pottery continues, which distributors have little difficulty in filling from stocks on hand. Coast potteries generally are busy on old orders for jobbers' stocks, and can give early delivery on most staples. Prices remain unchanged.

Plumbers' Brass Goods

Little change, if any, is noted in the demand for brass goods, and while most purchases are in small lots the total amount of material being consumed is well up to past weeks. Distributors are carrying fair stocks and are receiving prompt shipment on orders placed with factories. Jobbers' prices to the trade remain unchanged. Manufacturers' prices are the same as last week.

Range Boilers

Purchasing of this commodity by all concerned continues to be for current needs only, which are not large at present. Distributors generally have fair stocks and deliveries can be made as required without delay. Makers' prices are unchanged.

Fittings

The price advance announced last week by makers has been reflected in jobbers' quotations to the trade. Considerable business was placed to cover contracts previously secured which the trade was withholding from purchasing until material was actually required.

"Built with a click"

3 Reasons Why the Nelson Is a Real Relief Valve

The temper of the external phosphor bronze spring on the Nelson cannot possibly be affected by atmospheric or climatic conditions. It always retains its tension and assures perfect functioning.

The specially treated fibre disc, unlike the usual rubber washer, can not under any circumstances vulcanize on to the seat. It is a positive guarantee that this relief valve can not be converted into a plug.

The click warns you that the maximum pressure adjustment is reached, and the fact that this adjustment is purposely limited is the third feature which makes a real relief valve of the Nelson.

THE STACK HEATER CO.
250 Stuart Street, Boston, Mass.

BLAKE EXTRA HEAVY GARAGE DRAINS

Fig. K - 1135
Size 16" x 18"
" 21" x 30"

Every element of safety taken care of, including fire risk. Endorsed by all the leading communities.

Proper Deflectors to quiet the water and catch all mud and other matter in loose bucket, which can be lifted out and emptied.

Vents under bell to carry off gases. Deep water seals. Water trough around edge of top Deflector as a fire extinguisher. Size 16x18 suitable for one to three cars.

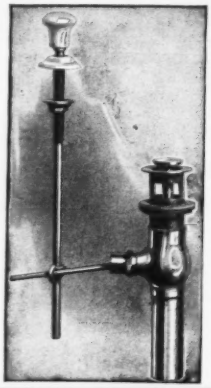
Size 21x30 suitable for large public places.

Your jobber will supply you.

Complete catalog will be sent on request.

BLAKE SPECIALTY CO.
Rock Island, Ill.
Canadian Service: All Crane Co. Branches

Meet us in Booth No. 4— Master Plumbers Convention, Memphis, and receive an elegant souvenir.



This is the Pop-Up Waste the plumbers DEMAND

"The WISECO"

Simple and Durable

Positive in Action
Built for Quality

J. B. WISE, INC.
Watertown, N. Y.

Your jobber can supply you

SIMPLIFIED VAPOR HEAT

AN easy to install system that gives positive control of low pressure vapor, within very close limits.

A post card will bring you Booklet and "The Hutchison Fitter."

Hutchison Regulator
Sales Corporation
12 Lispenard Street New York

HUTCHISON SYSTEM

The contractor receives a written guarantee on the heating capacity of every Capitol boiler

Guaranteed Heating WITH
Capitol Boilers
AND RADIATORS

United States Radiator Corporation · Detroit, Michigan
6 Factories and 32 Assembling Plants Serve the Country
For 37 years, builders of dependable heating equipment

SINCE 1895
Paragon SELF-CLOSING FAUCETS
with renewable seats

SMOOTH ball-bearing action. Patented "Samson" Lock, which makes Paragon handles easiest to adjust without special tools. Longer wear — better action. A wide variety of bodies and handles. Write for folder on the complete line.
Through your Wholesaler.

The CENTRAL BRASS Mfg. Co.
PARAGON DIVISION CLEVELAND O.

Convention Dates

June 26-29, 1928.—A. S. H. V. E.—The semi-annual meeting of the American Society of Heating and Ventilating Engineers, at West Baden, Ind., with headquarters at West Baden Springs Hotel.

August 21, 22, 23 and 24, 1928.—A. S. S. E.—The twenty-third annual convention of the American Society of Sanitary Engineering, to be held at the Pfister Hotel, Milwaukee, Wis.

August 24 and 25, 1928.—WISCONSIN—The annual convention of the Wisconsin Society of Plumbing Inspectors, to be held in Milwaukee, with headquarters at the Pfister Hotel.

January 28, 29, 30 and 31, 1929.—A. S. H. V. E.—The annual meeting of the American Society of Heating and Ventilating Engineers, at Chicago, Ill.

COMING TRADE EVENTS

June 25, 1928.—First annual meeting of the Plumbing and Heating Contractors Credit Association, to be held at the Elks Club, Newark, N. J., at 6:30 p.m.

June 26, 1928.—Outing of the plumbing, heating and supply trades of Buffalo, N. Y., to be held at Edgewater, with the boat leaving at 9:30 a.m. from the foot of Amherst street.

June 29, 1928.—A general conference of producers, distributors and consumers of pipe nipples, to be held at Room 704, Commerce building, Nineteenth and Pennsylvania avenues, Washington, D. C., at 10 a. m.

July 11, 1928.—The annual outing of the Heating Engineers' Association, Inc., of Brooklyn, N. Y., to be held at Karatsonyi's, Glenhead, L. I.

July 12, 1928.—Golf tournament of the Western Trade Golf Association, to be held at Glen Flora Country Club, Waukegan, Ill.

July 17, 1928.—The July meet of the Metropolitan Trade Golf Association, to be held at the Hudson River Country Club, Yonkers, N. Y.

July 18, 1928.—The July meet of the Heating and Ventilating Golf Association of Philadelphia, to be held at the Llanerch Country Club, Llanerch, Pa.

July 18, 19 and 20, 1928.—A short course for master and journeyman plumbers and steamfitters, to be held at A. & M. College of Texas, College Station, Tex.

July 26, 1928.—The annual outing of the Master Plumbers' Association of Washington, D. C., to be held at Chapel Point, Md.

August 1, 1928.—The annual outing of the Fairfield County (Conn.) Master Plumbers' Association, Inc., to be held at Dorlon's Point, South Norwalk, Conn.

August 15, 1928.—The August meet of the Heating and Ventilating Golf Association of Philadelphia, to be held at the Spring Haven Country Club, Wallingford, Pa.

August 16, 1928.—The annual outing of the Master Plumbers Association of the City of Trenton, N. J., to be held at a place to be selected.

August 16, 1928.—Inter-association golf tournament of the Western Trade Golf Association and the Michigan Trade Golf Association, to be held at Battle Creek Country Club, Battle Creek, Mich.

September 19, 1928.—The September meet of the Heating and Ventilating Golf Association of Philadelphia, to be held at the Green Valley Country Club in that city.

September 21, 1928.—Golf tournament of the Western Trade Golf Association, to be held at Glen Oak Country Club, Glen Ellyn, Ill.

October 15, 1928.—October meet of the Delaware Valley Trade Golf Association, at the Columbia Country Club, Washington, D. C.

October 17, 1928.—The October meet of the Heating and Ventilating Golf Association of Philadelphia, to be held at St. David's Country Club, Wayne, Pa.

October 23, 1928.—The October meet of the Metropolitan Trade Golf Association, to be held at the Wykagyl Country Club, New Rochelle, N. Y.

F. C. Kuetemeyer, prominent Milwaukee (Wis.) plumber and past president of the Wisconsin Master Plumbers' Association, is chairman of the campaign committee of George Bowman, candidate for district attorney for Milwaukee county.

THE TRADE

NEWS FOR PLUMBING AND HEATING CONTRACTORS

BUFFALO TRADE TO HOLD ANNUAL OUTING

Plans have been completed for the annual outing of the plumbing, heating and supply trades of Buffalo, N. Y., which is to be held Tuesday, June 26. The party will leave on a boat at 9:30 a. m. from the foot of Amherst street in that city, and will stop at Edgewater during the trip, also going around Grand Island.

Three meals will be served during the outing and refreshments will be on hand throughout the day. Baseball, bowling and other sporting events will be held, for which prizes will be given. The committee in charge of the outing is composed of: F. W. Stimson, A. G. Kranichfeld, F. M. Lochnicht, Fred N. Jones, E. S. Franke and M. A. Zack.

UTAH MASTERS HOLD BRIEF CONVENTION

The regular June meeting of the Utah State Association of Sanitary and Heating Engineers was held at Salt Lake City on the 7th of the month.

President Henry H. Bockholt called the convention to order at 10:30 a. m. The minutes of Secretary O. S. Walsh were read and approved. The report of the board was held over until the afternoon session. Following the report of Val W. Palmer, a member of the board of governors, as to the association progress in the extreme northern part of the state, the convention adjourned until 2 p. m.

Following a discussion of the association's financial condition, at the afternoon session, a motion was passed sending President Bockholt as delegate to the national convention. National Director William A. Bywater spoke on activities of the national, declaring that it was possible that the Plumbing and Heating Industries' Bureau would soon have a field man available for the Utah territory a considerable part of the time. The question of holding an outing during the month of August was discussed, the matter finally being left to the board.

TO HOLD INTERNATIONAL DEALERS' CONVENTION

The Williams Oil-O-Matic Heating Corp., Bloomington, Ill., has completed plans for its fourth annual international dealers' convention, to be held at the factory in that city on June 25 and 26. The company expects a large attendance of dealers at the convention, and will present a new oil burner for small homes at that time.

VIRGINIA PRESIDENT ISSUES BULLETIN

W. E. Coley, president of the Virginia Associated Plumbing and Heating Contractors, has inaugurated a monthly mimeographed news bulletin, to be sent to members. The first number starts off with greetings to the trade, gives some good information about the proper way to conduct a business, tells of the activities of the various local associations, and also has some chatty personal news.

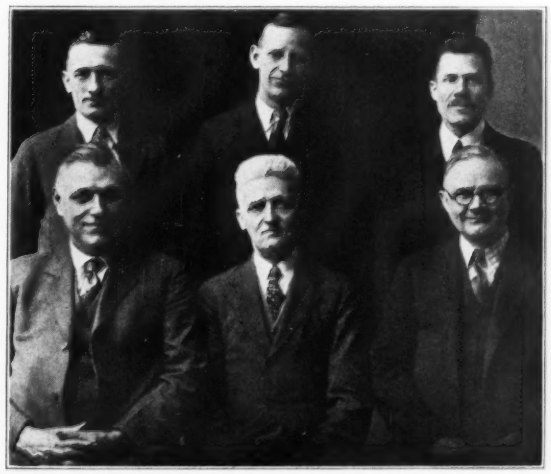
Among the personal items was one telling of the election of Percy Miller to the Winchester city council, and another about J. L. Pace and H. H. MacKenzie attending the North Carolina state convention.

WASHINGTON MASTERS SELECT OUTING DATES

Frank Bentley, secretary of the Master Plumbers Association of Washington, D. C., announces that the date for the annual outing of the association has been selected. The members plan to go to Chapel Point, Maryland, on July 26. Frank A. Kerr is chairman of the committee in charge.

KANSAS CITY HEATING CONTRACTORS PUSH CERTIFIED HEATING

The certified heating program of the Heating and Piping Contractors National Association is receiving 100 per cent co-operation from the Kansas City, Mo., local association of that organization, according to a recent communication from W. F. Coakley, heating engineer of the Kansas City contractors. The organization of that local of the national association is running along nicely, and Kansas City is being sold the idea of certified heating by all of its heating contractors. The accompanying photograph shows the officers and board of governors of the Heating and Piping Contractors Kansas City Association.



Front row: George E. Foley, president; William F. Coakley, secretary and engineer; Walter P. Joyce, governor. Back row: G. A. Oxler, governor; Walter J. Ernst, governor; Henry J. Nottberg, governor

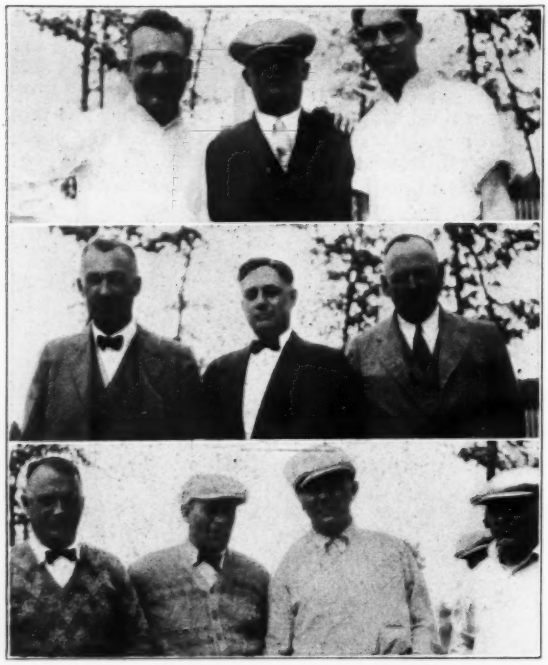
FAIRFIELD COUNTY MASTERS INVITE LADIES TO OUTING

The Fairfield County Master Plumbers Association, Inc., which has its headquarters in Stamford, Conn., has decided upon the date and place of its 1928 outing. Wednesday, August 1, is the date selected, and Dorlon's Point, South Norwalk, the place. A light lunch is to be served at noon, athletic events in the afternoon and a shore dinner in the evening. For the first time, the ladies are to be invited. The committee is made up of J. F. McNamara, G. D. L. Raymond, L. DeWitt Goulden, and George Turner,

all of Stamford, W. M. Henry, of New Canaan, John M. Forger and Stephen Miller of Norwalk, Clyde Crosby, of Westport, and Charles Knapp of Sound Beach.

CHICAGO CONTRACTORS PLAY GOLF AT EVERGREEN

On Wednesday, June 13, the members of the Plumbing Contractors' Association of Chicago and a number of guests gathered at the Evergreen Golf Club for the association's regular monthly tournament. Although the day was warm with plenty of sunshine, a high wind made it difficult in many instances to accurately control the ball. One of the best crowds of the season was on hand, many arriving early in the morning for the qualifying round. C. A. Dreier with a low net of 36 won this event and received a pair of golf hose. Luncheon was served in the club house and then the various foursomes teed off for



Top row: F. R. Fabbri, James B. Clow & Sons, William Redieske, Imperial Brass Mfg. Co., starter, and E. A. Mortimer Middle row: C. D. Harris, C. A. Bolton, secretary of Illinois Master Plumbers' Association, and Perry Russell. Bottom row: R. C. Flinder, James B. Clow & Sons, Ralph Reedy, E. Stevenson and P. D. Parsons

the tournament play. Following are the prize winners:

In Class "A," J. J. Kratz was first with a net 74 and received a steel shaft brassie. E. Fahlstrom, who was second, received a pair of golf hose, and E. Stevenson, with third place, won three golf balls.

First place in Class "B" went to Perry Russell, who won a steel shaft brassie with a low net of 72. A pair of golf hose was awarded C. J. Erickson for second place, and William Harvey received three golf balls for taking third.

W. J. Blyth, shooting in Class "C," took first place and a golf bag with a low net of 80. E. C. Oakes, who was second, won a pair of golf hose, and John Blair received three golf balls for placing third.

A. H. Jolliffe, M. Nelson and O. Lindahl, placed in the order named for the guest prizes and received golf balls.

Following are the flight prize winners, all of whom received one golf ball: Joseph W. Cannon, Charles Watson, K. McKenzie, S. McCarthy, W. F. Knauss, R. C. Flinder, J. MacKenzie, Peter M. Munn, C. A. Bolton, B. C. Bluhm, J. V. Liddy, G. F. Winkler, Fred. Zimmer, Frank Fabbri and P. D. Parsons.

Following are the scores:

Players	G.	H.	N.
Jos. W. Cannon	112	23	89
C. A. Dreier	105	26	79
J. J. Kratz	95	21	74
H. J. Becher	124	35	89
Peter M. Munn	107	29	78
Geo. H. Matthews	134	35	99
Perry Russell	100	28	72
J. T. Fitzsimmons	109	23	86
C. D. Harris	127	35	92
W. S. Eadie	135	35	100
Chas. Watson	121	30	91
C. Fortmiller	125	33	92
C. W. Alcock	121	28	93
Hugh Whitney	114	28	86
C. A. Bolton	110	30	80
H. Scheel	119	27	92
E. Fahlstrom	98	19	79
C. J. Erickson	101	26	75
O. Lindahl	107	30	77
K. McKenzie	105	21	84
C. W. Jones	103	21	82
C. Savage	117	21	96
W. Mulady	93	14	79
B. C. Bluhm	113	35	78
J. J. Flavin	102	18	84
S. McCarthy	106	24	82
R. H. Adams	99	26	73
Wm. Lee	114	22	92
C. Scholz	113	23	90
R. D. Ryan	118	27	91
C. E. Pullum	124	28	96
J. V. Liddy	109	30	79
A. Nilson	108	23	85
D. Stockham	107	23	84
G. Pettich	114	26	88
C. Nilson	103	21	82
W. J. Blyth	115	35	80
John Blair	120	34	86
M. Nelson	107	30	77
W. F. Knauss	123	31	92
W. F. Hildeman	119	30	89
E. Hoelscher	112	24	88
G. F. Winkler	108	29	79
Frank Hackett	109	21	88
R. B. Reedy	96	11	85
R. C. Flinder	91	12	79
E. Sanger	98	18	80
E. Stevenson	93	13	80
E. C. Wagner	145	35	110
E. Payne	101	17	84
E. Oakes	117	35	82
F. Zimmer	106	27	79
J. MacKenzie	108	21	87
C. McKay	136	35	101
Wm. Harvey	100	23	77
A. Jolliffe	99	22	77
F. Fabbri	105	25	80
E. A. Mortimer	103	20	83
F. S. King	118	26	92
G. R. Stearns	118	26	92
H. P. Reger	108	19	89
P. D. Parsons	113	29	84
C. L. Botley	114	26	88

MASTER PLUMBERS INSPECT HAJOCA PLANT

A group of master plumbers from Washington, D. C., and Baltimore, Md., recently went in a body to the brass plant of the Hajoca Corp., Philadelphia, on a tour of inspection. Chartered busses carried the masters from both cities, and luncheon was served en route. After inspecting the plant, the party went to the North East Shrine Club, where dinner was served.

NORFOLK MANAGER DISCUSSES ASSOCIATION WORK

"Is this just a coincidence?" asks C. F. DeLaBarre, executive manager of the Master Plumbers and Heating Association of Norfolk, Va., Inc., in a recent bulletin, going on to say: "One dictionary meaning of the prefix 'pro' is **for**. If you are 'pro' something or other, you're **for** it. And here are some very vital words which begin with 'pro'—**pro**tection, **pro**gress, **pro**fit, and **pro**sperity. The man who is really **for** something that is fundamentally sound usually **pro**fits and **pro**spers. So it is with this association and its members. The 'pro-association man,' the member who demonstrates that he is **for** his organization by attending its meetings, using the credit and collection bureau, pushing certified heating, and generally participating in all its activities, is bound to profit and prosper. Let's have more of the 'pro-association' men —men of 'my association, may she ever be right' type. It pays!"

C. F. DeLaBarre

MICHIGAN PRESIDENTS AND SECRETARIES MEET

Presidents and secretaries of local Michigan associations met at the Hotel Otsego in Jackson June 6 for the discussion of trade problems and the exchange of information.

Past State President William J. Hughes of Bay City acted as temporary chairman, and representatives attended from the associations of Jackson, Kalamazoo, Lansing, Detroit, Saginaw, Bay City, Grand Rapids and Port Huron.

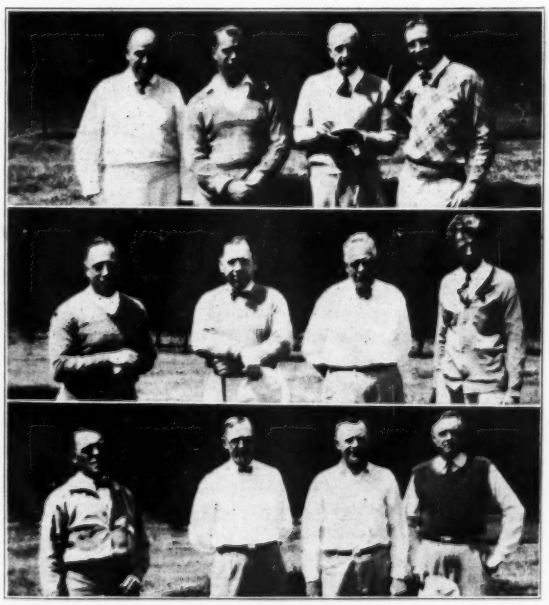
State officers attending included President A. N. Snyder of Detroit, Secretary-Treasurer W. A. Johnson of Kalamazoo and Directors W. J. Hughes of Bay City, Frank H. Dains of Lansing, Peter Schmidt of Grand Rapids, Glen Seeley of Pontiac, Joseph Miller of Flint and J. E. Withers, newly appointed state field man.

Members who attended were well repaid for their attendance in the information that was received. Many of the delegates drove more than a hundred miles through the rain to attend. It was decided to hold these meetings at least four times a year or more often, at the call of the state president, who will serve as chairman.

C. S. D. L. WINS TOURNAMENT AT BERESFORD COURSE

The May tournament of the California Sanitation Development League was held at the Beresford Country Club course. This meet turned out to be one of the most successful in the history of the league, which was especially noteworthy in view of the tournament held just a week before as one of the entertainment features of the California State M. P. A. convention, many men having participated in both events. The unusually large attendance of league players was further swelled by golf enthusiasts from the Mutual Business Club of San Francisco, making the affair a joint meet. As a result of the inter-team play, the leaguers defeated the Mutuals by an 8 to 2 count.

Many excellent scores were turned in, the honors for



Top row: George Pickerell, Jackson Noble, C. H. Alexander, Thomas Douglass. Middle row: N. W. Stern, Volney Howard, G. J. Brooks, G. I. Gay. Bottom row: Howard Finch, C. N. Corwin, J. J. McLeod, J. C. Keene. Photos taken at the Beresford golf meet of the California Sanitation Development League

MOHAWK SEPTIC TANKS

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Eliminating Bent *and* Broken Pipe Collars

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They are also equipped with an inner flange which prevents the pipe from sliding into the tank too far and becoming stopped up.

The Cover Handle of the Mohawk Septic Tank saves your time and makes your work easier when installing and adjusting.

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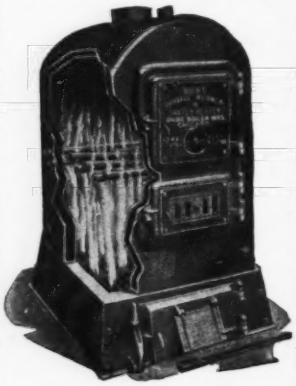

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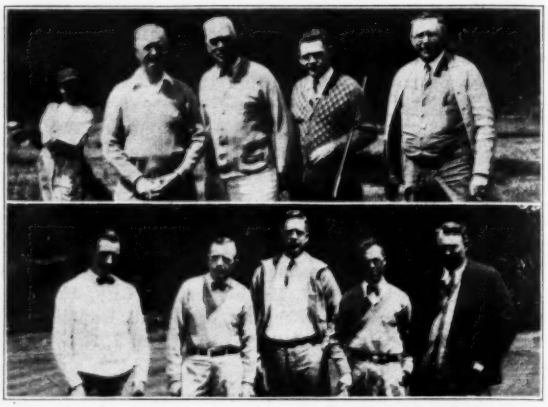


Top row: A. Nelson, T. J. Leary, Robert Allmon, P. Morgensen. Bottom row: C. P. McCarthy, A. G. Brown, Walter Mead, A. E. Judd, Donald O'Hair. Photos taken at the recent Beresford golf meet of the California Sanitation Development League

the league players going to Frank J. Klimm, president of the San Francisco board of health, for a low gross of 86; William P. Goss, past president of the California state association, making off with low net honors with a 68 card.

Luncheon was served to the thirty members who arrived early. At seven o'clock the banquet was in full swing, post-mortems over the afternoon's play flying thick and fast. The dinner feature of the league's tournaments is always looked forward to with keen anticipation, promoting, as it does, a high degree of mutual understanding and good-fellowship. N. W. Stern was host member for the occasion, generously placing every convenience of his club at the disposal of the players.

Among the scores turned in were:

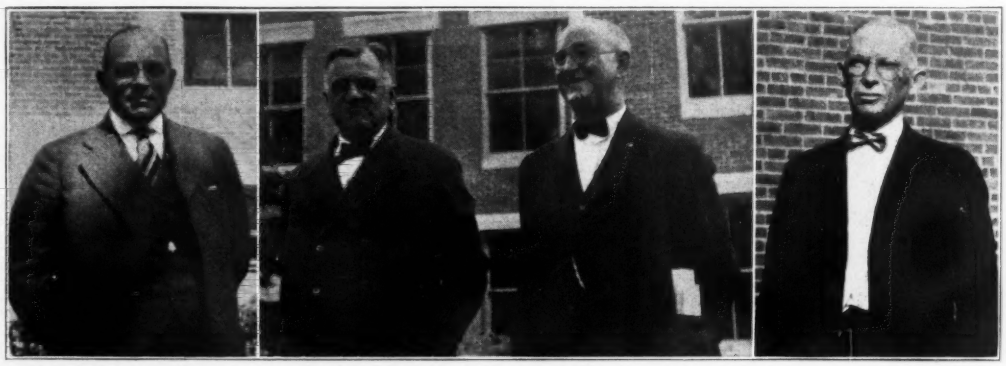
Name	G.	H.	Net	Name	G.	H.	Net
Brooks	104	15	89	Gay (guest)	85		85
Howard	100	19	81	Stern	87	15	72
Bybee	129	33	96	Fonticella (g'st)	100		100
Lane	151	35	116	Stoll	119	33	86
Anderson	144	35	109	Brown, A. G.	115	28	87
Judd (guest)	111		111	O'Hair	98	26	72
Johnson	101	23	78	Lamond	104	20	84
Miller	104	23	81	Young	97	20	77
Ellery	106	33	73	Elms	114	32	82
Forster (guest)	106		106	Goss	103	35	68
Allmon	100	22	78	Leary	106	24	82
Nelson	107	24	83	Corwin	120	29	91
Finch	100	20	80	Keene	118	20	98
McLeod	106	29	77	Ballentine (g'st)	111		111
Gilley	109	24	85	Guyette	117	26	91
McCarthy (g'st)	108		108	Brown, E. V.	121	33	88
Jose (guest)	111		111	Karib (guest)	111		111
Poheim	101	26	75	Arnott	95	19	76
Combs (guest)	131		131	Hoyt	99	21	78
Klimm	86	19	67	Alexander	103	18	85
Douglass	100	19	81	Noble	87	13	75
Pickerell (guest)	87		87	Lees	100	22	78
Lyon	122	30	92				

McKEESPORT MASTERS HOLD SUCCESSFUL MEETING

At a meeting of the McKeesport Master Plumbers Association, held in the Elks Temple, McKeesport, Pa., recently, the members listened to an interesting report by one of the members of the association on the recent Pennsylvania state convention. At the close of the regular business session, Jerome A. Owens, sales engineer for the Pittsburgh district, Richmond Radiator Co., addressed the meeting on gas burning equipment for heating the home. Mr. Owens' talk was interesting and well received, and upon finishing he was extended a rising vote of thanks by those present.

Hold First Maine Plumbing Conference

Two-Day Affair Held at State University



Prof. Embert H. Sprague, department of civil engineering, University of Maine, Orono; J. Preston Perham, Massachusetts apprentice commissioner; George T. Noyes, of Presque Isle, president of Maine State Association of Master Plumbers; Prof. William J. Sweetzer, department of mechanical engineering, University of Maine

THE first two-day conference of the Maine State Association of Master Plumbers was opened Tuesday morning, June 12, at the University of Maine, Orono, under the auspices of the department of civil engineering, College of Technology. Eighty-two members from various sections of the state registered the first morning.

Professor Embert H. Sprague of the department of civil engineering, outlined in detail just how the program for these two days of conference would be carried out. Prof. Sprague directed the program of the conference.

Dean Paul Cloke, presiding, introduced Harold S. Boardman, president of the University of Maine. President Boardman welcomed all master plumbers and their wives to the university, and extended the courtesies of the institution. He stated that an engineering experiment station had been established at the institution within the last four years, and that he believes in keeping in touch with the activities of the state, and giving assistance to all.

George T. Noyes, president of the association expressed his appreciation to President Boardman on behalf of master plumbers, and the assistance the university engineering department is giving them, to enable them to make sanitary conditions of the state better. He stated that it was surprising how little people realize the importance of sewage and waste disposal, and that he feels that this first meeting will be the turning point toward higher education and better conditions in the state of Maine. He said that one of the real purposes of this meeting was to get the viewpoints of the engineering staff of the university, theoretical and practical.

Professor Luther J. Pollard, director of university extension, discussed the principles which are fundamental to good business, and its reputation in the community, under this heading, "Building, Developing, Maintaining and Selling a Reputation." Professor Pollard emphasized some of the fundamentals that every master plumber should uphold such as: (1) Use Grade A material; (2) do not attempt to use inferior materials in order to cut costs; (3) do not hire cheap help or incompetent workmen; (4) strive to make your reputation be like a building, one that remains for generations; (5) always have foremost in mind that your work is the foundation for the betterment of your community.

He advised all master plumbers to bring salesmanship and personality into their business. "Make the consumer feel confident of fair dealings, through pleasing appearances. Be sure your salesmen or yourself know materials, and be able to suggest items that would fit the requirements best for consumer," he said, "and also be sure he can estimate accurately so there is always a clear understanding between consumer and contractor."

Discussion was held upon the talk given by Professor Pollard, and many contractors offered constructive criticism. President Noyes urged everyone to read their business papers, as he said there is always enlightening and educational information in them. He suggested that they all should study the various manufacturers' catalogs, and urged all wholesalers' salesmen present to sell grade A material first. Iver Iverson of Portland stated that a man who looks for something for nothing usually gets nothing for something.

Professor William J. Sweetzer, department of mechanical engineering, gave a detailed lecture on methods of determining heat losses from buildings, the size of radiators to use, and sizes of piping for steam heating systems. He explained the comparative heat output of low and high radiators, also the effect of added width of the heat output. He outlined the effects of various radiator paints on their perfect functioning.

John W. Glover, of the heating department of the university, talked on the use of unit heaters, and said that their use was becoming general, especially in heating large areas. The purpose of his lecture was to give a description of the different types of heaters and their application to buildings, garages, and factories, etc., which have in the past been generally heated by steam pipe coils. The modern type unit heater allows cold air to be blown by a fan over heated coils into even areas, and in factories, garages, etc., where floor space is needed, the suspended type heater is used. Floor type units should be placed inside close to wall area, he said, so that the discharge is blown toward one side of the exposed wall.

Unit heaters have been tested at the university and various types were discussed. Slides were used to picture these conditions clearly. An inspection of heating units that are now operating on various buildings on the campus was made.

"Waste Material and Its Relation to Health and Happiness" was the subject of a talk by Professor Embert H. Sprague. The lecture was intended to show how we have progressed from primitive conditions to the present mode of living, and also the value of the control of sanitary conditions where a great number of people are gathered together. Professor Sprague stated that happiness is a reality of things that are possible. Happiness is not obtained unless people are healthy, and health is only obtained through cleanliness, he stated, and went on to say that domestic sewage is the danger point. "People are now beginning to realize that it is an engineering job to combat this condition. More sanitary engineers are needed, and it is their job to create the confidence of the general public," he said. Professor Sprague advised everyone to make themselves familiar with conditions in their own city or town, and to spread their knowledge and theories to combat unsanitary conditions among the general public, in places where it does the most good. Methods of disposal through unsanitary methods often get into water supplies, and often result in contaminating the water, resulting in such dreaded diseases as typhoid.

Pollution of waste is proper and safe where sources of disposal are sufficient, he related, but in many cases where this condition is not avoidable, treatment should be made. In large cities or towns the better treatment is with the use of septic tanks, or by adding a slight amount of chlorine and alum and then allowing the water to go through a filtering process.

Dr. Elmer W. Campbell, department of public health, Augusta, Me., spoke on "The Laws of the State of Maine in Regard to Plumbers' Work." Dr. Campbell gave a detailed explanation of what the plumbers should know about the laws of the state of Maine in order to give good service and produce good work. He suggested that all master plumbers of the state should obtain a copy of new code and familiarize themselves with conditions. He emphasized the point that no inspector has the right to appoint another inspector to inspect his own work, as this appointment will be taken care of by the state board of health.

Under state laws of contract and a decision passed down by the attorney general, a plumber can buy cheap inferior material upon specification of the owner, he explained, but when he installs this material he leaves himself open for legal action by the state health commission when his workmanship and material does not come up to requirements of the state code. Dr. Campbell also explained that it was just as important that inspectors in small outlying towns check jobs according to code, as is done in the large cities, and just as much attention must be paid to sanitary conditions in country towns as in cities.

Top row: Percy Quimby, C. & H. M. Plummer Co., Portland, Me.; J. Johnson, Portland; Mrs. George T. Noyes, Presque Isle; Mrs. R. T. Gordon, Sullivan; Mrs. Iver Iverson, Portland; Mrs. Charles Kieser, president of Massachusetts women's auxiliary; Mrs. Neil Knudsen of Portland; Mrs. C. Madsen, Portland; Mrs. Leon Blaisdell of Gardner; J. W. Silk, Jr., Bar Harbor; Leon C. Blaisdell of Gardner. Bottom row: Iver Iverson of Portland; J. Donovan and Neil Knudsen of Portland, Henry Sleeper of Rockland, Ettore Gonella, Livermore Falls; Will C. Miller, W. B. Hubbard & Son, Boston; J. E. Allen of Presque Isle; Ralph Gordon of Sullivan; G. A. Billington of Presque Isle; W. W. Noyes of Mars Hill; Philip Eaton, H. B. Smith Co.; A. E. Young of Fort Kent, Me.

HEAR TALK ON ECONOMICS

PROFESSOR Walter B. Chadbourne, department of economics, spoke on "Economics of Business Administration With Special Reference to Overhead and Profit." He explained that overhead expenses are not sufficiently considered in many cases, and the economic principles underlying a scientific treatment of this subject lead to a closer bid and higher percentage of profit. Professor Chadbourne stated that a large percentage of failure in the plumbing industry was due to wrong accounting practices. Four important factors must be given a great deal of consideration in determining cost of doing business. They are: Materials, direct labor, overhead costs and profits.

Under materials he said to buy grade "A" material that is guaranteed against defects in workmanship and material. This eliminates going back to replace material found defective, which would automatically increase the cost of doing the job. Under direct labor, be careful in the selection and training of competent workmen, as good material improperly installed adds greatly to cost, he said, and that workmanship is the chief factor of labor cost.

Under overhead costs, Professor Chadbourne cautioned master plumbers to beware of false profits. The items that master plumbers should consider very important in including their accumulated overhead are as follows: Cost of advertising in business; automobile expense; bad debts; cleaning and janitor service; depreciation; donations; heat, light and power; indirect labor; insurance in all forms; interest on money; invested legal expense; tools; miscellaneous expenses; office salaries; repairs and stationery; taxes on real estate; business papers; telephone and telegraph; traveling expense; water bills.

One of the big questions to be answered is "How Do Overhead Costs Affect Net Profits," he said. By changing costs we mean a change in the aggregate amount, not in the individual items, and the question is partially answered by statistics concerned with costs and volume of business. "You are all familiar with methods employed by chain stores, the automobile manufacturers, and the power companies," he said. "Their remarkable success is not only due to having something to sell that the people want, but in proving to the consumer that the more they buy the cheaper they buy. Quantity production has enabled them to reduce prices, and quantity production has been possible only through effective advertising and efficient financing and sales stimulation."

Let the contractor study his conditions, also conditions of his neighborhood. He can create and cultivate new markets. Let him take the old home question. People are today driving 1928 automobiles and have 1898 heating systems. They talk about how many miles they obtain per gallon of gasoline, but do they talk about how many tons of coal they used last winter?" he asked about the potential remodeling market.

J. PRESTON PERHAM TALKS ON APPRENTICESHIP

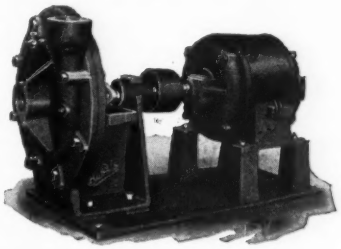
J. PRESTON PERHAM, apprentice commissioner, Massachusetts Sanitary Club, spoke on the "Relation of Master Plumber to the Journeyman and Apprentice." Mr. Perham stated that in order to make a business most successful, there are some things which a master plumber should understand relative to the personnel of his working force. Mr. Perham showed what is desirable in this line and what has been done and accomplished in Massachusetts.

There has been a misunderstanding among journeymen that it was the intention of the state apprenticeship committee to increase the number of mechanics, he said, but added that this is not the case. The committee's efforts are toward increasing the quality of mechanics. It is proven that the mechanic of today does not install his work as the mechanic did 15 years ago. Conditions as exist today make it necessary that mechanics and sanitary engineers have a greater knowledge and training.

In order for a boy to enroll in the state apprentice school, he related, it is preferred that he have a high school education, be of good character and show an interest in the industry. He must be between the ages of 16 to 21. The apprentice is hired, trained, and paid as an apprentice, and his term of training is about 5 years. The commission feels it takes 5 years to produce a competent journeyman. Mr. Perham explained that future master plumbers and competitors must come from the ranks of journeymen, and therefore competent men with thorough training will make good competitors. Each master plumber of today should realize his problems, and shoulder his share of the responsibility, and it should be the duty of every master plumber to train at least one apprentice, he further explained.

He said that the next job is to attract the right kind of apprentice. The Massachusetts apprentice committee saw

An inexpensive pump for handling any kind of liquid, hot or cold, steady or intermittent service.



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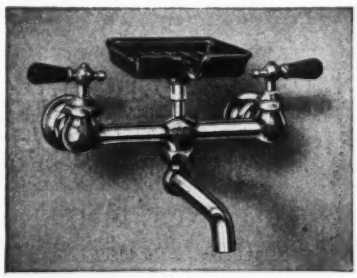

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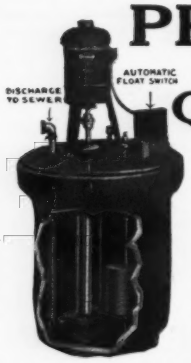

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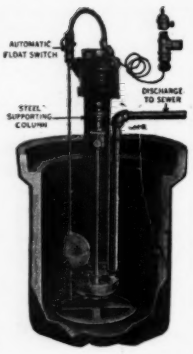

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fit to increase the wage scale of apprentices, which offers more of an inducement to go into the plumbing industry, and it should always be carefully explained at that time to each apprentice just what future there is in it for him, he added. If the proper type of apprentice is not in training, he is very liable to get discouraged before his training period is completed, Mr. Perham warned, and he would leave and start in as a handy man, which is a menace to the industry.

Mr. Perham outlined the necessity of having up-to-date equipment for the apprentice to work with, explaining that it is also of vital importance that the proper type of instructor be appointed, and both the journeyman and the master plumber should be carefully considered before making this selection. The instructor, whether he be a master plumber or a journeyman, may know his business, but he must have the ability to transmit his knowledge to the apprentice. Mr. Perham stated that the state apprenticeship commission is made up of journeyman plumbers, master plumbers, wholesalers and the school board. This committee cannot function properly without teamwork of the journeyman plumber with all other members. His co-operation and assistance is essential on the job to help the apprentice.

Mr. Perham said he hopes that the State of Maine will take up this valuable work, and assured the Maine association that it would readily receive the co-operation of manufacturers to promote interest in the industry.

"Small Size Septic Tanks and Disposal Areas" was the subject of a talk by Professor Richard T. Tyler of the Massachusetts Institute of Technology. The design of small septic tanks was explained, together with the disposal area needed under different conditions of soil, and the danger of well pollution from uncontrolled conditions. Professor Tyler brought greetings from M.I.T., and stated that plumbing conferences are spreading rapidly throughout the country. The plumbing industry is alive to changes, he added, and it is apparent they feel that these conferences are necessary in order to elevate their profession to a higher level. Professor Tyler explained the use of both metal and cement septic tanks, and suggested that the use of the metal baffle type tank he preferred in taking care of sewage in the smaller homes.

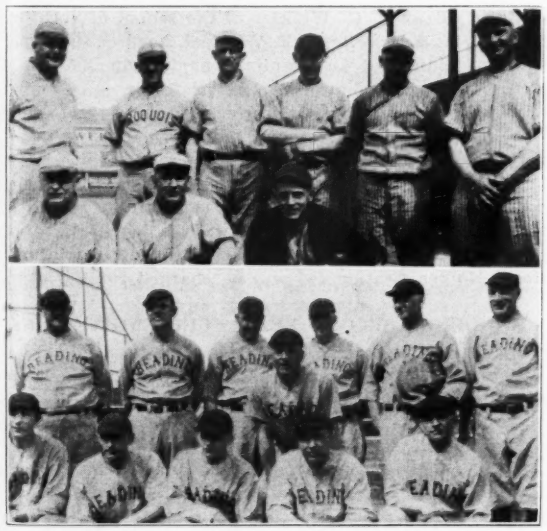
"Safety Devices in Domestic Hot Water Systems" was the subject of a talk by Elmer Stack, consulting engineer of Boston, Mass. Mr. Stack outlined the dangers in overheating water and made suggestions to eliminate this danger. He stated that the new Maine state plumbing code emphatically states that no water shall be heated to more than 255 degrees on any part of the system. Overheating of these systems has caused explosions in homes, resulting in great loss of property and sometimes life, Mr. Stack explained, and said that it has been customary in the past for master plumbers to place their temperature relief valve on the cold water line, directly over the boiler, or directly on top of the boiler. Mr. Stack stated that fusible plugs now are being applied to positions on domestic hot water systems where they are of no protective value. Inasmuch as the new Maine plumbing code states that a fusible plug used must fuse at 215 degrees or below, this fusible plug must be placed on the boiler at the position where it meets the hot water, or the temperature in the boiler meets the plug. He suggests that they place the plug on the tank somewhere below the center of the tank. Mr. Stack's reasoning on this is based as follows: with a gas water heater going, and with temperature relief valve on cold water line, and a faucet in the sink dripping at the rate of 1 quart every 10 minutes, there is sufficient cold water coming in the cold water line, passing down to anywhere from 20 to 60 degrees below the

actual temperature of the water half way down on the boiler.

"Epidemics and Water Supplies," a talk by Professor Elmer R. Hitchner, department of bacteriology, explained the relationship of the water supply to the spread of disease. The points covered by Prof. Hitchner included the following: Diseases carried by water; how spread; method of detection of the relationship of the water supply to disease spread; relationship of sewage pollution to the spread of disease; means of control. Following his lecture, laboratory demonstrations of slides and samples of water.

YORK BEATS READING IN OPENER

It is not generally known outside the state that in Pennsylvania there exists a baseball league composed of two teams of master plumbers, one from York and the other hailing from Reading. The season's schedule calls for three games, the first of which was played this year in the afternoon following the last day of the Pennsylvania state convention. The stands of the International League ball park in Reading, where the game was played,



Top: The York team, victors in the first contest. Bottom: The Reading team, the losers

were well sprinkled with spectators of both sexes who remained over to witness the clash.

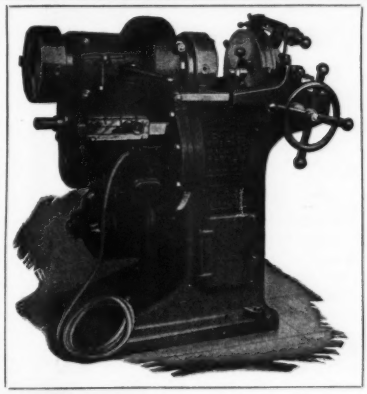
The game, which was of seven innings, resulted in a victory for York by a margin of 25 to 17. The large score was due not so much to any loose playing, but because both sides boasted players who can hit good pitching hard. Chris Troutwine of York practically saved the game for his side when he stopped a Reading batting rally with some sharp fielding and his own batting.

The next meeting of these teams will be on a date in the near future not yet arranged.

The lineups were as follows:

Reading—	York—
Bachofer, Jr., cf.	Shive, 1b.
Foster, 3b.	Rutter, 2b.
Ulrich, c.	Wise, p.
Wachter, 1b.	R. Hoffman, c.
Wagner, ss.	Becker, 3b.
Rothenberger, p.	Lanius, lf.
Chelius, 2b.	F. Hoffman, cf.
Mathias, rf.	Picking, rf.
Scherer, lf.	Smith, ss.

Umpires: Reber and Clauser. Scorer, Luch.



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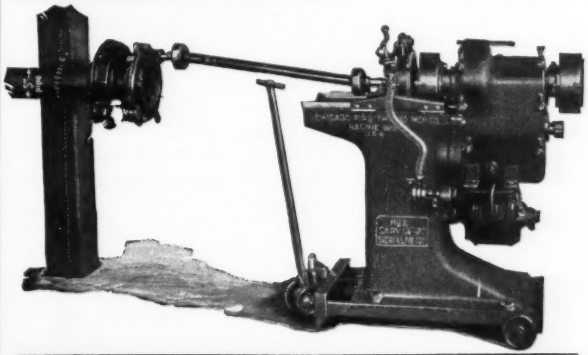

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MUSKEGON MICHIGAN

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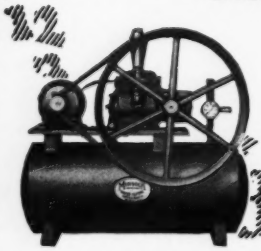

ran the equivalent of 10 years use without repair or ANY sign of wear

3 9

10 years and STILL RUNNING

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Less free servicing expense, lasting customer satisfaction and greater profits are adding hundreds of new, enthusiastic dealers to our organization.

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ENTERTAINS CHICAGO HEATING CONTRACTORS

A. H. Schroth, vice president of the Richmond Radiator Co., New York City, was host to a party of approximately 100 heating contractors and others from Chicago, following the annual convention of the Heating and Piping Contractors National Association. The party, which was made up of friends of Mr. Schroth while he was living in Chicago, was taken to New York City from Philadelphia, and its members were his guests at dinner and the theater the first evening, and for golf, sight seeing and a Hudson River trip the following day.

TO HOLD SHORT COURSE IN TEXAS

Having as its object the bringing together, under supervision of the school of vocational training, those who are interested in the improvement and development of the plumbing and heating industries, a three-day conference for master and journeyman plumbers and steam fitters will be held at the A. & M. College of Texas, College Station, Tex., July 18, 19 and 20. This will be the first short course of its kind ever held in Texas.

An array of lecturers who promise to make the sessions of much interest to those in attendance includes: Dr. J. C. Anderson, state health officer; V. M. Ehlers, state sanitary engineer; Dean C. H. Winkler of the school of vocational training, A. & M. college; E. W. Steel, head of the department of municipal and sanitary engineering, A. & M.; S. E. Dibble, Theodore Ahrens professor of plumbing, heating and ventilating, Carnegie Institute of Technology; Dr. F. E. Giesecke, director of the Texas Engineering Experiment Station.

It is desired that those interested in attending the short course send their names as early as possible to Dr. F. E. Giesecke, College Station, who will be in charge of the sessions, so they may be supplied with detailed information. No registration fee will be charged for the course.

ANNOUNCE SECOND YEAR FUEL ENGINEERING COURSE

The mechanical engineering department of the Towne Scientific School, University of Pennsylvania, Philadelphia, Pa., has announced the opening of the second year course in fuel engineering for October 1, 1928.

This course embraces: fuel resources, mining methods, preparation for market, distribution, storage and rehandling, composition and combustion of fuels, manufacture of special fuels, uses of fuels and specifications for purchase, furnaces, fuel sampling, analysis and calorimetry, fuel testing in heating and power appliances, domestic heating, cooking, smoke elimination and regulations affecting use of water power and of fuel resources.

Subjects of lectures are given below:

Relation of fuel to modern civilization and to national prosperity, coal, lignite and peat resources, petroleum resources, natural gas resources, relation of water power to fuel resources, power sites with relation to water supply, fuel and water power resources of Pennsylvania, anthracite, bituminous coal and lignite, peat, petroleum, natural gas, storage and spontaneous combustion, coke—high temperature carbonization, coke—low temperature carbonization, briquets, powdered fuel, oil from shales, oil from coals, processing or pre-treatment of coal including high vs. low temperature distillation and resulting by-products, a study of the composition of solid, liquid and gaseous fuels relating to their quality and adaptability for commercial use, also a study of the principles and laws governing combustion of solid, liquid and gaseous fuels.

There will also be lectures on economics of gas manufacture, a study of the methods of sampling and analyzing the various fuels and of determining their calorific values,

with laboratory work in fuel analysis, fuel calorimetry and flue gas analysis, calorimetry, practical fuel tests in various types of house heating and power equipment, determination of efficiencies and relative economic values of different fuels, a study of domestic heating and cooking requirements with emphasis on greater economy, efficiency and comfort in our homes, together with an analysis of the smoke problem, a survey of smoke abatement accomplishments to date and a suggested progressive procedure resulting finally in the elimination of smoke, adaptability of solid smokeless fuel, domestic heating with oil, gas or electricity, gas vs. electricity for cooking, central heating, effective elimination of smoke in cities, a comprehensive investigation involving practical research in the field of greater economy in the use of fuels, better efficiency in the use of equipment, improved equipment design, development of new equipment or development of new processes of fuel production and utilization.

THREE OHIO ASSOCIATIONS HOLD JOINT OUTING

Undaunted by inclement weather, approximately 600 master plumbers, their families and friends attended the Northeastern Ohio Tri-City Master Plumbers' Outing, sponsored by the Akron, Canton and Youngstown associations, Saturday, June 9, at Springfield Lake Park, near Akron, Ohio.

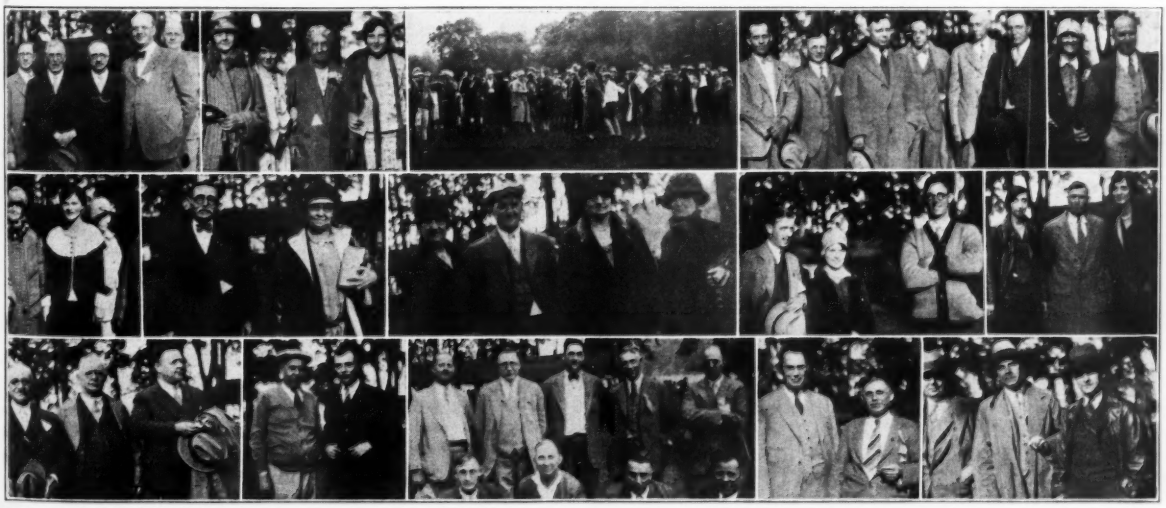
Though the day was darkened by rain, the program was run off as planned. A basket lunch was served in the recreation room adjoining the park, and the balance of the day was spent at the park ball field. Races and novelty events were the features provided by the committee, which was composed of William Grabowsky, Akron, general chairman; Charles W. Wilson, Youngstown, general secretary, and the following three committeemen from each of the represented cities: Akron—Oliver Hoffman, H. P. Bright and C. S. Blowers; Canton—William Grabowsky, H. E. Mueller and Arthur Baum; Youngstown—N. J. Little, M. F. Reilly and C. W. Wilson.

Generous prizes for winners of the events were provided by the Ruud Mfg. Co., Pittsburgh, Pa.; Hoover Co., North Canton, Ohio; Standard Sanitary Mfg. Co., Akron, Canton and Youngstown branches; Schley-Nash Co., Youngstown; M. R. Emrich, Cleveland; Ohio State Supply Co., Youngstown; American Radiator Co., Youngstown, Akron and Canton branches; Crane Co., Youngstown; Scioto Valley Supply Co., Canton; National Radiator Corp., Canton; Walworth Ohio Co., Youngstown; Apple-Fried Co., Cleveland; Stambaugh-Thompson Co., Youngstown; Humphrey Co., Youngstown; Winzeler Bros. Coffee Co., Canton; Hardware & Supply Co., Akron; Pierce, Butler & Pierce Mfg. Corp., Akron; Dick Backus, of Barnes Mfg. Co.; I. H. Clark, of the Hoffman Specialty Co.; Woodward-Wanger Co., Philadelphia, Pa.

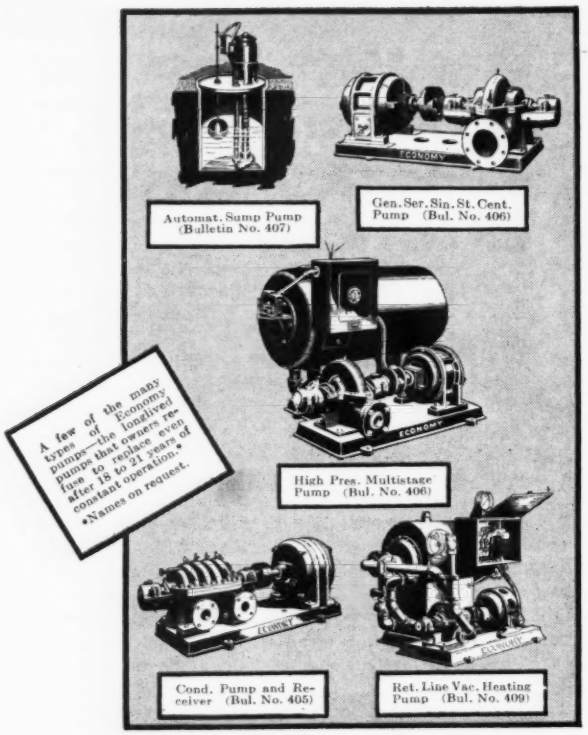
Among the novelty contests in the picnic program was the "Oldest Couple in Attendance" contest, which was won by Mr. and Mrs. John Sorensen, of Ravenna. A desk lamp and an electric iron were given the winners.

Another event which added to the gayety of the day was the "Beauty Parlor" contest, in which couples were paired off, the ladies taking on the roles of tonsorial artists and shaving their men partners with ordinary table knives. The "catch" in the contest was that one of the lather cups was filled with a generous quantity of lamp-black, unbeknown, of course, to the victim to whom it was to be applied. George Alexander, of Ravenna, drew the unlucky shaving mug, and Mrs. M. F. Reilly, of Youngstown, his partner, did not spare the applications, much to the mirth of the onlookers.

Among the attendants at the picnic were David H. Roberts, of Cleveland, past national and state president; his son, George Roberts, also associated in the plumbing business in Cleveland, and Eb Ellen, of Cleveland, past national and state secretary. William Rowland, president of the Ohio Master Plumbers Association, Oliver Hoffman, Akron president; A A. Schmutz, Youngstown president, and William Zernaki, Canton president, also attended.



Top row: R. H. Viall of Akron, Eb Ellen of Cleveland, A. G. Weinberg of Youngstown, A. D. Herschler of Canton, W. F. Nye, Akron; Pierce, Butler & Pierce Mfg. Corp., Mrs. A. D. Herschler of Canton, Mary Crogan, Mrs. Celestin Summers, Katherine Reilly, all of Youngstown; part of the crowd at the ball field; E. A. McLaughlin, W. P. Leffler, Walter Cahill, all of Akron; George Alexander of Ravenna, C. C. Alexander of Ravenna, Walter F. Kirn of Akron, Clair Moss of Youngstown, W. W. Barber. Middle row: Mrs. C. G. Hahn of Canton, Alma Gerst of Youngstown, Elizabeth Conway of Youngstown, Mr. and Mrs. John Sorensen of Ravenna, Mrs. J. C. Moss, W. E. Reilly, Mrs. M. Laughlin, Mrs. Jones, all of Youngstown; W. J. McDevitt, American Radiator Co., Canton; Jane McQwaide of Youngstown, J. Frank Conroy of Youngstown, the Misses Laughlin of Youngstown, William Rowland, president of Ohio state association. Bottom row: A. G. Weinberg of Youngstown, David H. Roberts of Cleveland, past national and state president; George Roberts of Cleveland; E. P. Ellwood, H. A. Hollaran, Hardware & Supply Co., Pittsburgh; seated, Charles W. Wilson, M. F. Reilly, both of Youngstown, H. P. Bright of Akron, and C. S. Blowers of Akron; H. E. Mueller of Canton, William Grabowsky of Canton, N. J. Little of Youngstown, Arthur Baum of Canton, Oliver Hoffman of Akron; Fred Steffens, Hardware & Supply Co., J. O. Ellis, Fred Fry, George Cahill, Morgan Sheedy, Standard Sanitary Mfg. Co., Canton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Economy Pumps

What is Harmful Air?

(Continued from Page 23)

funeral, is the admission that while there may be some objectionable condition, we have not been able to call it.

The Psychological Angle of Ventilation

Every few minutes a new reason for such air being harmful is discovered, and then is exploded. About all we can admit is that the effect is psychological,—we don't like it until we become used to it and after we have become used to it we no longer care!

We must still admit that about all we know is that we think we feel better and are happier if temperature, humidity and air movement are controlled within reasonable limits, and as we think, to a very great degree, so we are.

A considerable mass of information has been compiled by the New York Commission on Ventilation about children in day schools. Of course these studies cover a comparatively small part of the life of the child, and some of the evidence which can be gleaned from these data is contradictory.

In general, the observations seem favorable to lower temperatures than we ordinarily like, with less air than the ordinary 30 cubic feet per pupil per minute. There does not seem to be much effect from dust or moisture content.

You can subject rats or guinea pigs to controlled air conditions all of their lives and can hope to draw some conclusions. You cannot take many liberties with school children or with factory workers as to making their air conditions unusual, without stirring up fear and opposition.

I would like to have ventilation studies of several groups of life prisoners in some big penitentiary, where the full life cycle over years could be controlled as to air and food and sunshine, and I rather believe, until we can study groups under controlled conditions, we will not find agreement about just what is harmful in respired air, or what is vitally necessary in new air, to human beings.

Window and Mechanical Ventilation

As to window ventilation versus mechanical ventilation there is no reason for any quarrel. Anything mysterious that an open window can do probably can be done by a fan and air duct, even if it comes to some such process as finding a way to insulate against extraction of the mysterious vital element. It may be, you know, that air by rubbing over metal, or by being heated, loses something.

No one who is intelligent, I think, would object to window ventilation if window ventilation were practicable. If however, a long happy life is dependent upon window ventilation alone, our present civilization centering in great city buildings and factories, is doomed.

We are in a synthetic age. We believe and seem to prove, that nearly all of nature's processes can be duplicated, often more perfectly and surely to gain the desired end by artificial means than by the natural processes.

Our great buildings, our stores, offices, factories, our tunnels and our subways, cannot be provided with enough windows near enough to the outside, to provide control of temperature or process-fumes. Fans and ducts, however, enable us to simulate the air and temperature change positively which the windows give only when they are near, when they look to windward and when someone constantly controls them.

Controls Dust

Dust is mentioned in Mr. Barnes' article. Dust is a by-product of intense population. It may be that any dust does more harm by shutting off the sun than by its actual presence in the lungs, or by the disease germs which ride upon its floating particles.

I remember as a boy, when I first studied the various world religions and came to realize that man always has had an instinct to worship some sort of god, wondering a little why the sun worshippers didn't have a greater following. Perhaps the sun as a god was too plain spoken and obvious and not sufficiently mystical.

Granted no inherited prejudices, it has always seemed to me that this glorious object, so far away, yet so truly the sine qua non of our life, ought in truth to satisfy all the necessities for an idol for a practical civilization.

When we stay too much in his radiance we suffer from sunburn, and apparently a too sunny civilization doesn't hold its own with a temperate one.

When we get away, however, from his direct influence, or from the vital substances which he has stored up for us, as in coal or oil or cod liver or winter vegetables, we quickly die off.

If we learn eventually in the human process of learning, which is cut-and-fit, grope-and-stumble, that so simple a thing as the sun is what fixes up our air conditioning, I will be pleased and I shall not be surprised!

IS AUTOMOBILE EXHAUST GAS A HAZARD IN STREETS?

Bloomfield and Isbell, two chemists in the Industrial Hygiene and Sanitation office of the United States Public Health Service, have completed a survey of the concentration of exhaust gases from automobiles in the streets of large cities and in repair shops for the purpose of ascertaining whether or not a health hazard is thus created. Fourteen of the largest cities were visited having a combined population of over 19,000,000, and 250 samples of air were obtained for analysis.

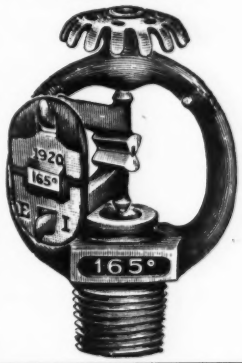
Analyses of 151 street samples, taken at points near intersections when traffic was halted and at the side of the traffic officer's post showed that the only individual who may possibly be exposed to a health hazard from inhaling street air containing automobile exhaust gas is the traffic officer. This potential hazard may be minimized by diminishing the duration of exposure at the most congested traffic station.

Of the 102 samples taken in 27 garages in 14 cities, the average carbon monoxide content was 2.1 parts per 10,000. More than half of the samples (59 per cent) contained over 1 part of carbon monoxide, and 18 per cent of all the samples contained over 4 parts of this gas in 10,000 parts of air. These results for repair shops show a dangerous condition that demands the serious consideration of those concerned. This hazard may be reduced to a minimum by not allowing the motors of automobiles to run longer than 30 seconds unless the car is in necessary motion or the exhaust is connected to the outside air by a direct airtight outlet of ample caliber. Without such outlet no automobile engine should be allowed to run indoors, except to reach its berth or to leave by the shortest route. All of these samples were taken in garages of considerable size. The great danger to life is unquestionably in the small private garage containing one or two cars.

Under any circumstances the discharge of an automobile exhaust into a roofed inclosure should be regarded as a hazardous act.—Health News, New York State Dept. of Public Health.

C S B

SPRINKLER HEADS



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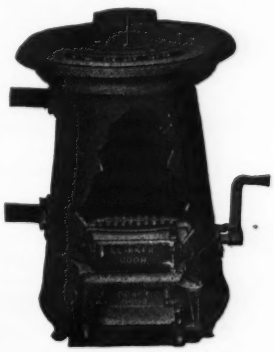

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4 Colors are fast.
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7 Do not crack, peel, get gummy or harden.
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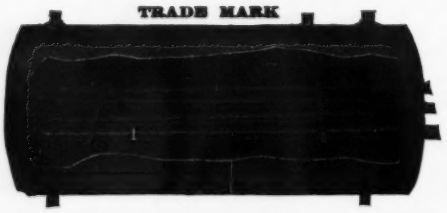
STEEL  TANKS
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MANY ATTRACTIVE EXHIBITS AT PENNSYLVANIA CONVENTION

THE products of approximately fifty manufacturers of both plumbing and heating materials were arranged on the mezzanine and lobby floors of the Rajah Temple, at Reading, Pa., during the week of the Pennsylvania State Convention of Master Plumbers. The exhibits, attractively arranged with the newest types of equipment, not only attracted the attention of those in attendance at the convention but large numbers of the general public as well. Among those maintaining displays were:

Syntron Central Pennsylvania Co., Reading, Pa., showing portable electric hammers and sprays.

Bright & Co., Reading, Pa., presented to view a steel boiler and a number of lavatories. The booth was in charge of H. Hartzell.

Dick Bros., Inc., Reading, Pa., in an attractively arranged booth presented the line of compression brass goods of their manufacture. C. K. Dick, L. LaRoche and P. B. Snyder were on hand.

Quiet May Oil Burner Co., Baltimore, Md., displayed, under the direction of W. H. Deale, factory representative, Charles Lees and S. Voultz, one of its burners in operation.

Peerless Pennsylvania Co., Philadelphia, Pa., maintained a booth where brass goods and pottery were exhibited under the supervision of Harry Lentz, A. Lentz, R. S. Beck and F. Speth.

Warren Webster & Co., Camden, N. J., displayed, under the supervision of S. M. Brooks, the line of vapor heating specialties of its manufacture.

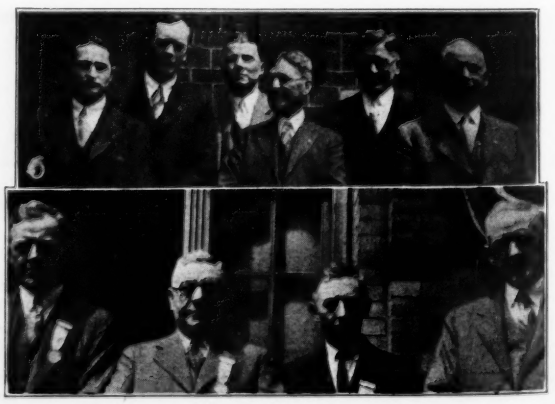
Wolverine Brass Works, Grand Rapids, Mich., with R. Larson, sales manager, in charge, assisted by F. Dockery, R. E. Peel and H. K. Martin, had an attractively arranged exhibit of cast brass goods and rubber specialties, products of this firm.

John Wood Mfg. Co., Conshohocken, Pa., in its space displayed its line of automatic gas water heaters, E. D. Freas and M. F. Piersal representing this manufacturer.

Reading Heater & Supply Co., Reading, Pa., displayed a steel boiler and a forced draft unit. E. Amol and E. J. Baum were on hand.

Crane Co., Chicago, Ill., displayed in a striking manner a single lavatory of its manufacture.

Oster Mfg. Co., Cleveland, Ohio, demonstrated the actual workings of one of its pipe cutting and threading machines. Howard W. Oster of the Philadelphia office supervised the demonstrations.



Top row: A. Winslow of Olyphant, J. F. Arthur of Dickson, C. G. Steinecke of Throop, J. H. Lally of Olyphant, J. B. O'Hara of Olyphant, T. L. Williams of Germyn. Bottom row: E. A. Spohrer, J. A. Redington, M. A. Gilroy and A. S. Powers, all of Pittston. Photos taken at the recent convention of the Pennsylvania Master Plumbers' Association

United States Rubber Co., New York City, in its booth in charge of W. A. Burke, displayed its line of rubber specialties.

Hajoca Corp., Philadelphia, Pa., had a large, well arranged booth in which a water supply system, a colored lavatory with new type fixtures, a line of brass goods, soil pipe and pumps were shown. The booth was in charge of F. H. Wiese, manager of the Reading branch, A. Miller, R. W. Geauquw and R. C. Grossman.

Kaustine Co., Inc., Perry, N. Y., exhibited one of its tanks.

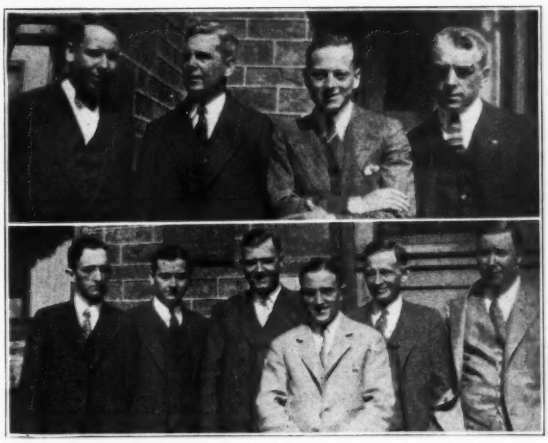
The Reading Apprentice Plumbers' School had an interesting exhibit of the lead work and drawings of students in the second year classes.

Jenkins Bros., New York City, showed its line of valves, in charge of H. C. Rinehimer.

Berks Plumbing Supply Co., Inc., Reading, Pa., maintained an elaborate booth in which were displayed the products of the following: Stanley G. Flagg & Co., Inc., Philadelphia, Pa.; Speakman Co., Wilmington, Del.; Central Brass Mfg. Co., Cleveland, Ohio; Trimont Mfg. Co., Boston, Mass.; Excelso Products Corp., Buffalo, N. Y.; Joseph A. Vogel Co., Wilmington, Del.; Alberene Stone Co., New York City; National Asbestos Mfg. Co., Jersey City, N. J.; Belknap Mfg. Co., Bridgeport, Conn.; Clayton & Lambert Mfg. Co., Detroit, Mich.

Woodward-Wanger Co., Philadelphia, Pa., had a booth in which was displayed its line of tank balls, colored closet seats, bath room fittings and cleaning compounds, under the direction of C. W. Wanger, G. H. Baker, Thomas Ferrand and C. C. Meyer.

Turner Supply Co., Chester, Pa., displayed a sectional boiler, tank heater and radiators, with James Norris and Lee Buckwalter in charge.



Top row: G. H. Baker, advertising manager, C. W. Wanger, president, Thomas Farrand, C. C. Meyer, all of Woodward-Wanger Co., Philadelphia. Bottom row: W. H. Kratz, Speakman Co., Wilmington, Del.; H. S. Surft, Alberene Stone Co., Philadelphia; George A. Thomas, Jr., manager Philadelphia branch, Alberene Stone Co.; John Radice, Trenton Potteries Co., Philadelphia; Lee M. Keller, Trenton Potteries Co., Trenton; R. G. Milne, Stanley G. Flagg Co., Inc., Philadelphia. Photos taken at the convention of the Pennsylvania Master Plumbers' Association

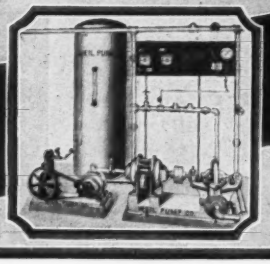
Orr & Sembower, Inc., Reading, Pa., exhibited its steel boiler. L. J. Truhan, engineer, was in charge.

Thatcher Co., Newark, N. J., with Thomas M. Jago in charge, exhibited its line of boilers and radiators.

United States Radiator Corp., Detroit, Mich., was represented by R. D. Rose, D. E. Welsh and H. Smith in its

The Entire Countryside
You do not have to confine your selling efforts on Holyoke Water Heaters to any restricted area. For the city, the Holyoke Gas Water Heater can be pushed, and for the suburban districts and farms, the Holyoke Kerosene Water Heater is incomparable.
Study the construction of Holyoke Heaters and you will at once understand why they are superior.
Write us for our complete catalog.
Holyoke Heater Co.
HOLYOKE, MASS.
Patented

WEIL PUMPS
for Better Service



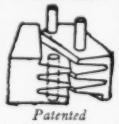
Weil Pneumatic Water Supply System. Fig. P 1301.

Write for Bulletin P 1300

Weil Pump Co.
215-7 W. Superior St.
Chicago, Ill.
Few agencies still open.

Built-Well Toilet Seats are priced right for quick sales. Study the details of the Built-Well V-Lock Joint shown here—see how sturdily this seat is constructed.

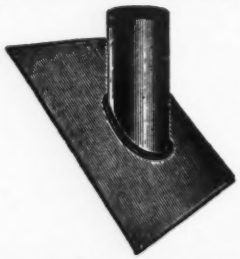
The Built-Well V-Lock Joint



Patented
Sectional view of joint, turned upside down to show how dowels are inserted from bottom. Moisture only makes them tighter.

Built-Well Mfg. Co. 300 N. Robey Street CHICAGO, ILL.

RAYMOND



Lead Roof Flanges

Raymond Lead Roof Flanges are priced no higher than the imitations which you are asked to buy. Insist upon this flange for easy installation, reasonable price and long leakproof service.

RAYMOND LEAD WORKS
735 S. Washtenaw Avenue
Chicago, Illinois

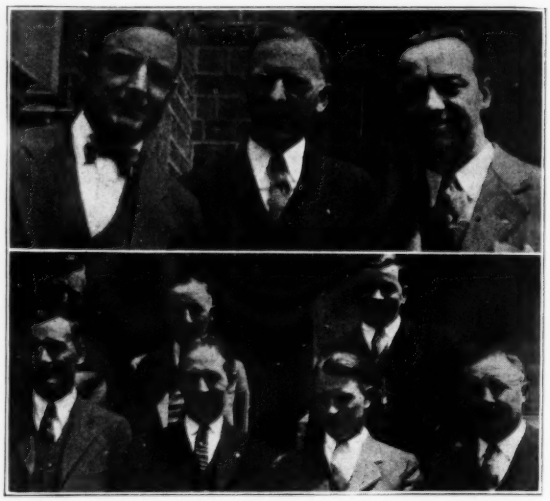
Low cost, absolute cleanliness and guaranteed perfection in operation.

These are the points to keep in mind concerning Signet Floor Drains.

No flooded basements, no sewage, gas or germs.

Patented

SIGNET Floor Drains
Crampton-Farley Brass Co.
Kansas City, Mo.



Top picture: J. A. Cleary, Quaker City Specialty Co., Philadelphia; R. J. Maggi, Anchor Sanitary Co., Pittsburgh; C. A. Wagner, Kohler Co., Philadelphia. Bottom picture, back row: S. Long, American Radiator Co.; W. B. Everts, Lancaster; E. Palmer, Harrisburg. Front row: George Grove, Josam Mfg. Co.; Thomas Degnan, American Radiator Co.; Fred Rosehel, Lancaster; C. G. Long, Lancaster.—Photos taken at the convention of the Pennsylvania Master Plumbers' Association

booth, where one of its round boilers was on display.

Reading Iron Co., Reading, Pa., with R. Tyson and R. I. Fretz in charge, displayed samples of wrought iron pipe from its mills.

Peerless Heater Co., Boyertown, Pa., displayed a gas-fired boiler and one of its sectional coal boilers. G. E. Gambrill, William A. Dysart and George Harberger represented the company.

Reading Foundry & Supply Co., Reading, Pa., had six booths interestingly arranged, in one of which the products of the Trenton Potteries Co., Trenton, N. J., were exhibited, Lee Keller and John Radice representing that company; G. T. Kohler of Weil-McLain Co., Chicago, explained the boiler of that firm's manufacture; H. A. Thrush & Co. had its tank in basement system on display in another booth; E. Richard Castor, W. Simmons and R. Laros were in charge of the line of cast iron and brass fittings made by the Reading Foundry & Supply Co.; American Brass Co., Waterbury, Conn., showed its line of brass pipe, under the direction of C. M. Saltsman, John Becht, J. W. Stoner, George Bronson, J. H. Larmete and G. M. Hurlbut; Grabler Mfg. Co., Cleveland, Ohio, and Republic Brass Co., Cleveland, also displayed the products of their companies.

EverHot Heater Co., Detroit, Mich., had a booth in charge of C. F. Thompson, Philadelphia office, in which visitors were shown the company's products.

Penn Engineering Co., Philadelphia, Pa., offered in its booth post and stand vises and coal economizers, in charge of Albert F. Schreck.

Freed Heater Co., Collegeville, Pa., with Roy Wanner in charge, displayed its jacketed boiler; other representatives in the booth were J. K. Hallowell, John Freed and A. Pierson.

National Radiator Corp., Johnstown, Pa., exhibited its boilers and radiators under the direction of R. W. Barcus, manager, Philadelphia branch; C. A. Sawade, assistant sales manager; George Moran, Harrisburg; Harry Montgomery, Reading; M. M. Taylor, Allentown; M. Huvett and R. Baumer, Johnstown.

Woman's Page

At the recent convention of the California Merchant Plumbers' Association, Charles R. Hutton, retiring president, praised the women's auxiliaries, which, he said, have done so much to elevate the status of the plumbing industry. Women of the auxiliaries have done much, and may do more, by means of educational propaganda. Besides influencing the various women whom they meet in other clubs and societies, they have the opportunity to interest the children in the home in the importance of sanitation. Children thus taught will grow up with a greater sense of the value of the plumber to the community than will those who have not had the advantage of such training.

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Tampa Auxiliary Enjoys Spaghetti Dinner

On Wednesday, June 6, Mrs. O. E. Kruse, vice president of the Tampa, Fla., Woman's Auxiliary to the Master Plumbers Association, assisted by her mother, Mrs. Higgins, entertained the members of the auxiliary with a delicious spaghetti dinner. Covers were laid for eleven of the members besides the hostess, and all pronounced the dinner a delightful one.

In the afternoon the regular monthly meeting was held, President Mrs. George McGhan, Jr., presiding. Mrs. Kruse gave a splendid report of the outing held on May 24 at Clearwater beach when the St. Petersburg master plumbers and ladies of their auxiliary joined the Tampa auxiliary for an old-fashioned basket picnic. Those enjoying Mrs. Kruse's splendid hospitality were: Mrs. George McGhan, Jr., Mrs. Frank Williams, Mrs. Leo Senesac, Mrs. D. O. McDonald, Mrs. Isabel Boonzonia, Mrs. S. D. Blanton, Mrs. James F. Scott, Mrs. Farley, Mrs. E. Holmes and Mrs. W. E. McAndrew.

Cleveland Auxiliary Plans Outing

The Ladies' Auxiliary of Cleveland, Ohio, held its regular monthly meeting on June 6 at the Oak Pythian Temple building. Eleven members were present. It was decided to hold the annual outing at Cedar Point on July 10. All members are to meet at East Ninth street pier at eight a. m. sharp. Mrs. George Sullivan and Mrs. V. Smith entertained the ladies after the business meeting. Bridge was played and Mrs. A. P. Keller and Mrs. C. W. Miller held high score. The next regular meeting will be held on July 11, with Mrs. A. P. Keller and Mrs. L. W. Webb as hostesses.

New Auxiliary Formed in Kay County, Okla.

The Master Plumbers' Association of Ponca City, Okla., gave a picnic on May 26 for members, their wives and children, and the journeyman plumbers with their families. A number of supply house representatives also attended. The picnic was held in a pecan grove eight miles northwest of town, and the 275 persons attending were loud in their praises of those in charge of the affair. The master plumbers diverted themselves by playing the games of their childhood. A game of polo in which pieces of galvanized pipe were used for horses, plumbers' friends for polo sticks, and flush balls for polo balls, occasioned much merriment. The big boys and the little boys also enjoyed games of ball, horseshoe-pitching, and croquet. There were plenty of good things to eat—country fried chicken, potato salad, boiled eggs, baked beans, buns, olives and pickles, and last, ice cream and pop.

In the afternoon, Mrs. William F. Black of Enid, president of the Oklahoma state auxiliary, was present, and talked to the ladies on the subject of organization. Sam A. Rice of Oklahoma City, president of the master plumbers' state association, also addressed the ladies. With the aid of Mrs. Black and Mr. Rice, the ladies present from various parts of Kay County formed an auxiliary, the membership including nine from Ponca City, three from Blackwell and two from Newkirk. Officers were immediately chosen, the election resulting in the following being named: President, Mrs. George R. McKey of Ponca City; vice president, Mrs. Harry Gerhard of Blackwell; secretary, Mrs. Lester Olson of Ponca City; Mrs. W. J. Casemore of Ponca City, treasurer. It was decided that meetings should be held the third Friday night in each month, at the same time and in the same city as the meetings of the master plumbers of Kay County are held. The first meeting was scheduled for June 15 at Blackwell.

Detroit Auxiliary to Have Several Outings

The last business meeting for this season was held June 5 by the Women's Auxiliary of Detroit, Mich. Many interesting festivities are planned for the summer, the first of these being the picnic to which Mrs. Mesnard, president of the auxiliary, has invited the members. This will take place at Mrs. Mesnard's summer cottage at Wall Lake. Last year a most enjoyable outing was held there, and the ladies are looking forward to this year's occasion. In July the auxiliary plans to have a picnic at Belle Isle,

Top picture: Mesdames J. S. Nawrot, A. P. Collard, Nellie Hughes, J. B. Cain, H. Mesnard, A. H. Snyder. Bottom picture: Mrs. E. Mason, of Pontiac, Mrs. K. O. Eighmy of Highland Park; Mrs. P. A. Couture and Mrs. B. Lindebaum, both of Bay City; Mrs. Hazen Kunkel and Mrs. Charles F. Kalin, both of Detroit.—Photos taken at the recent convention of the Michigan Women's Auxiliary

THE "EAFCO"
NEW STYLE
PHILADELPHIA
REGULATION
VENT BOX

Like all "Eafco" products the Vent Box shown is fully covered by our guarantee. It will stand up on the hardest jobs and serve for years with no appreciable sign of wear.

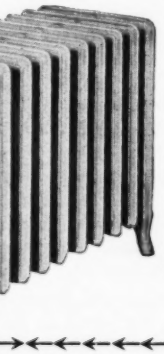
ASK YOUR JOBBER

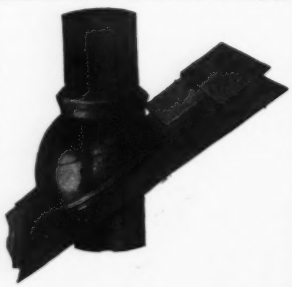
Eastern Foundry Company
Boyertown, Pennsylvania

B-45

McKEESPORT RADIATION

Pronounced by contractors and users alike as striking in design and positive in economical heating—McKeesport Radiators. The Columbia Radiator Co., McKeesport, Penna.



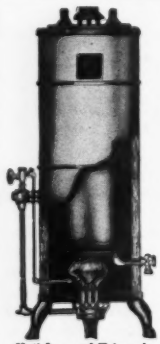


Bullard Roof Flashings can never pull apart

They are solderless, made of the finest virgin metals and so constructed that they may be installed in the minimum of time.

Your jobber has Bullard Roof Flashings.

The Bullard Specialty Co.
Tiffin Ohio



Koil-Les and Triumph Non-Liming Heater

Tank Surface Heated

Both the Koil-Les and Triumph Automatic Storage Heater lines are tank surface heated—**Non-Liming, Highly Efficient, Fool Proof and Low Priced.**

Greater Profit Offer

Mail this ad at once for our wonderful offer which guarantees you **low list prices** and **greater discounts.** Offer mailed without any obligation on your part.

KOIL-LES HEATER CO.
Geneva, Illinois, U. S. A.

at which time the master plumbers are invited to supper. In September an outing will be held at the summer home of Mrs. Nawrot at Lake Orion. In this way members of the auxiliary will keep in touch with each other all summer, and after these pleasant outdoor diversions will be ready for regular meetings in the fall.

East Side Auxiliary Holds Meeting

The East Side Auxiliary was entertained recently by Mrs. Walter Schlegel, at her home in Belleville, Ill. A one o'clock luncheon was served, and during the afternoon bridge and five hundred were played. Mrs. Nebger was assisting hostess.

Philadelphia Auxiliary Entertains Germantown Ladies

At the meeting of the Women's Auxiliary to the Master Plumbers' Association of Cleveland, Ohio, held June 7 at their hall, 1716 Arch street, the ladies had the pleasure of entertaining the members of the Germantown auxiliary. A meeting of officers and directors was held during the hour preceding the regular business meeting. A most interesting entertainment was provided, one of the features being a treasure hunt, where every lady received a number, and then searched until she found a package, hidden away in the room, and bearing the number that she held. This proved to be great sport, and everyone enjoyed the search. There were many other games, too, and after these, a delicious luncheon served by Mrs. Feeney and her committee. This ended a year of pleasant social activities as well as real accomplishment.

The substantial sum of $150 was donated by the auxiliary to the scholarship fund. After the summer vacation meetings will be resumed in the fall, when another busy season is planned.

Florida Auxiliary Holds Meeting

A meeting of the Florida Division Woman's Auxiliary to the Master Plumbers Association was called on May 28, by President Mrs. Roy E. Martin, of Miami. Mrs. J. A. Mann, of Winter Haven, second vice president, presided at the meeting owing to the absence of Mrs. Martin.

A number of matters pertaining to the auxiliary work were discussed, the national convention at Memphis being one of the chief topics of discussion. Mrs. W. E. McAndrew, third vice president of the National Women's Auxiliary, who is in charge of the auxiliary's booth at Memphis, invited the state master plumbers in attendance at the state board meeting to visit the national auxiliary booth. She was given a substantial appropriation to be used for flowers for the booth and to purchase other decorations for the auxiliary booth.

Deep regret was expressed that Mrs. Lee Sheffield, of St. Petersburg, first vice president, was absent on account of illness, and that Past President Mrs. Foster R. Fanning of Winter Park was also unable to attend. After the meetings had adjourned, President F. M. Quinlan of the Florida State Master Plumbers Association took a number of pictures of the members and guests.

Syracuse Auxiliary Closes Season

The Women's Auxiliary of the Master Plumbers' Association of Syracuse, N. Y., held its last meeting for the season at Krebs, Skaneateles, N. Y. A delightful dinner followed the meeting, which was attended by a large number of members and guests. This meeting closed a most successful year, and members are already looking forward to the opening of the fall season, when meetings will be resumed. At that time meetings will be held in the rooms of the master plumbers' association, instead of the homes of members as heretofore.

O. C. Davis, who started in the plumbing and heating business in 1880, in Racine, Wis., sold his business recently to John Feiner of that city, and is planning to retire. Mr. Davis has been well known in the trade for the past forty years.

DISTRICT HEATING SCHOOL AT PURDUE UNIVERSITY

In September, 1927, Purdue University, Lafayette, Indiana, conducted a heating school for the employes of the member companies of the National District Heating Association. This school produced results of such an encouraging nature that the association determined to continue it.

As a result a second school was held at Purdue University from May 21 to May 25, 1928. It was organized in two distinct courses. One dealt with those phases of direct interest to the utility companies. The other was of more general interest as well as more basic in character. It dealt with the computation of building heat losses and with the use of this information in laying out the heating plant, writes Professor G. H. B. Hotchkiss.

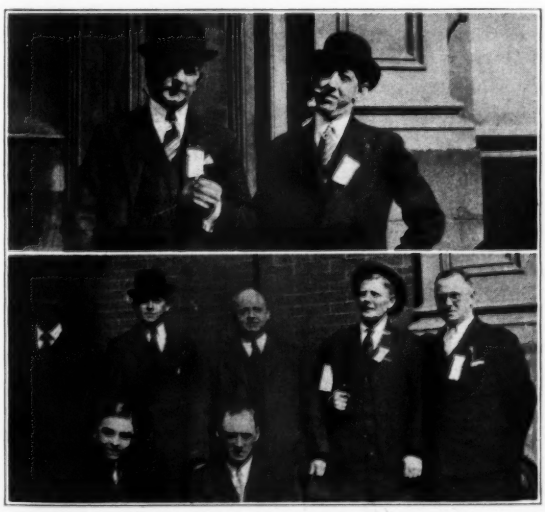
The school was conducted as a regular educational enterprise. Instruction was given wholly by members of the mechanical engineering staff of the university. Representatives of manufacturers were excluded from a place on the program. The work consisted of lectures, discussions, problems and a heating layout. The work was so conducted that previous training was not essential.

The attendance reached a total of sixty.

The basic course, or "Course 1" as it was called, contained so much material of direct interest to heating contractors that its contents are given in some detail.

The first feature was a series of two lectures, two discussions, and problem periods, and a laboratory period devoted to the fundamental ideas behind heat and its measurement. This was followed by a day devoted to the explanation of the nature of heat losses from buildings, of how these losses are decreased, and of how they may be computed. This was followed by a rather lengthy consideration of the effect of applying insulating materials to the walls, and of applying window stripping, etc., to the windows and openings. Examples were used continually to make the application of these ideas clear.

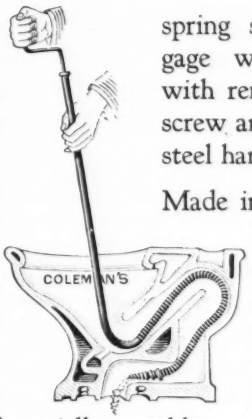
Considerable attention was given to the various systems of arrangement of piping for steam heat. The essential ideas behind the one- and two-pipe steam systems, the vapor system and the vacuum system were considered.



Top picture: William Colston of Jepco Mfg. Co., Howard Ryan of American Brass Co. Bottom picture, standing: Charles Tilton of South Portland; Frank Murphy, Joseph Maynard, president of Boston Brass Co., P. A. Mahoney of Portland, E. D. Moynihan of C. M. and H. T. Plummer Co., Portland. Seated: Fred Hall of Grinnell Co., Providence, R. I.; Neil M. Knudsen, president of Maine Master Plumbers' Association. Photos taken at the recent convention of Maine Master Plumbers' Association

Coleman's

FLEXIBLE COIL WIRE CLOSET CLEANER



Instant removal of any obstructions in closet bowls, etc., is guaranteed when you use the Coleman Flexible Coil Wire Closet Cleaner.

The flexible coil is made of specially prepared oil tempered spring steel No. 12 gage wire, ½" size with removable corkscrew and cone wire, steel handle and tube.

Made in two grades, both highly serviceable for all buildings where toilets are installed. From your jobber — or direct but be sure it's Coleman's.

Allan J. Coleman
208 N. Wabash Ave. Chicago, Illinois

Your First Choice

No. 30
1 gallon

Covered by patents

should be the new No. 30 kerosene-gasoline furnace. Starts in 2 minutes. Melts 40 lbs. of metal in 15 minutes. Burns kerosene up to 450 hours before burner pipe clogs. Burner pipe can be replaced at nominal cost.

Send for circular illustrating and describing the 12 improved features fitted to this furnace.

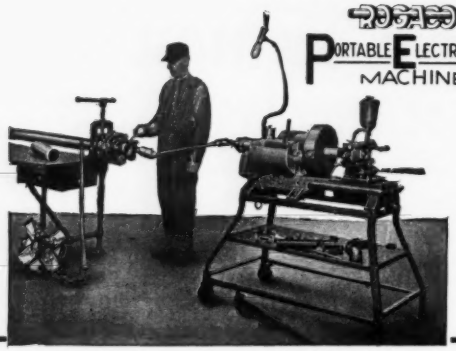
Order through your regular distributor, or mail your order to us with their name.

OTTO BERNZ CO. INC., Newark, N. J.

Manufacturers of "Always Reliable" furnaces, torches and plumbers' tools

Stocks in Newark, N. J., New York City, Chicago, and San Francisco.

Offices in Newark, N. J., New York City, Chicago, Fort Worth, Denver, Helena, Mont., San Francisco, Los Angeles, Seattle, and St. Thomas, Ont.



FACTS

It is a fact that you cannot meet competition and make a profit unless you employ up-to-date methods and use modern labor saving devices.

Hundreds of piping contractors throughout the country are using the Rogaco Portable Electric Pipe Machine to save time and labor and to increase their profits.

Write for information about this practical machine.

Manufactured by
ROBBINS, GAMWELL & COMPANY
PITTSFIELD, - - MASSACHUSETTS

HESSLER
ROOF FLANGES

Ask Your Jobber

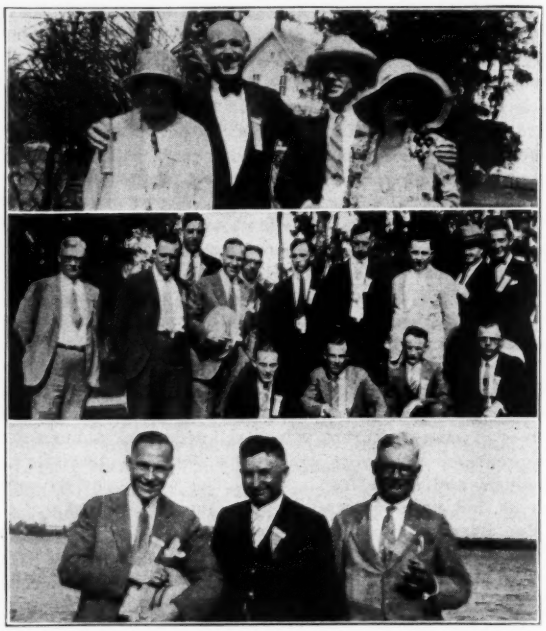
Ask your jobber to show you the Hessler Roof Flange.

You will see at a glance why it will save you a great deal of time on installation.

There is nothing for you to do but hammer it in place.

Order Hessler Roof Flanges in half dozen lots. Then you will always have one on hand for an emergency job.

H. E. HESSLER COMPANY
Syracuse, New York



Top row: Mrs. and Mr. James Gegan, Mr. and Mrs. Walter Jester, all of Miami. Middle picture: A group of salesmen and manufacturers' representatives. Bottom picture: M. Loury of Hajoca Corp., C. G. Green of Sarasota, A. Peacock of Tampa Plumbing Supply Co. Photos taken at the recent convention of the Florida State Association of Master Plumbers and Heating Dealers

The fundamentals of securing control of steam heating by the use of the fixed differential and the fixed orifice were pointed out. The use of these ideas as practiced in the newer developments in steam heating was discussed.

The various methods in common use for determining the amount of heating surface for use in a given building were considered. In this connection the methods of the American Society of Heating and Ventilating Engineers, the Heating and Piping Contractors National Association and others were examined and illustrated.

Probably as interesting and valuable a phase of heating work as any is that which deals with the sizing of piping. The background of the flow of steam in pipes was discussed and analyzed. The use of the various formulae were illustrated by the use of problems. It was brought out that while these formulae give good results where steam is flowing, they are not satisfactory where there is a counterflow of steam and water in the same pipe. This being the case in many of the pipes in heating installations, it was pointed out that the use for a formula does not give results of value in such work. This explains why a method of trial, or of research, has had to be resorted to. The idea of "critical velocity" was explained. The methods and the results of the recent researches on pipe sizes were discussed. Charts were presented showing the latest recommended practice on pipe sizes as well as some of the older practices.

The course was completed with the application of the various methods and principles to an existing building. The heat losses from this building were computed, the quantity of radiation was found and the pipe sizes necessary were determined. This data was reduced to a drawing. These various items were then checked up with those in the building. The course as a whole was full of information of the kind which every progressive heating contractor finds of continual use.

PROFESSIONAL PRIDE

The evident insincerity of the hired mourners of the East has often been noted. But what is to be thought of the sincerity of those who seem able to suppress or call forth their grief at will?

It is reported that a woman in the mountains of Tennessee was seated in the doorway of her cabin, busily eating some pig's feet. A neighbor hurried up to tell her that her husband had become engaged in a moonshine brawl and had been shot to death. The widow continued munching on a pig's foot in silence while she listened to the harrowing news. As the narrator paused she spoke thickly from her crowded mouth: "Jes wait, Mirandy, till I finish this-here pig's trotter, and then ye'll hear some hollerin' as is hollerin'!"

L. N. O'F., Los Angeles, Calif.

CANINE MECHANICS

The professor was trying to demonstrate a simple experiment in the generation of steam.

"What have I in my hand?" he asked.

"A tin can," came the answer.

"Very true. Is the can an animate or an inanimate object?"

"Inanimate."

"Exactly. Now can anyone tell me how, with this can, it is possible to generate a surprising amount of speed and power almost beyond control?"

One student raised his hand.

"Well, Smith?"

"Tie it to a dog's tail."

Selected.

LOOK FOR THE SILVER LINING

A man was smashed up in a railroad accident. The family received a wire saying: "Mr. Hess in railroad wreck. Both legs, both arms, back and neck broken, and skull fractured."

And a few hours later a second dispatch arrived:

"Not so bad as at first reported. One arm not broken."

WALWORTH KEWANEE CRAFTSMAN.

IRREPRESSIBLE

"Hey, you!" yelled the traffic officer at the amorous driver, "why don't you use both hands?"

"I'm afraid to let go of the steering wheel," grinned the irrepressible youth at the wheel.

B. O. D., Providence, R. I.

WANTED: EXHIBITION SPACE

A traveller for a large manufacturing firm was working over new ground, and orders were few and far between. Entering a fresh establishment, he presented his card, only to be told that there was really nothing in his line required just then.

"Will you permit me to just show you a few of our leading lines," he begged.

"No, sir," was the reply; "we really cannot spare you the time at present."

"Well, sir," persisted the traveller dejectedly, "would you mind me just opening my bag here, and having a look myself? I haven't seen 'em for nearly three weeks."

"SY" SEZ

Perhaps the automobile is ruining the younger generation, but the generation has certainly ruined its share of automobiles.

A neurologist says optimists live longer than pessimists. They might, if they didn't nave such sublime faith in loose brakes.

News story says three-eyed fish caught. Which shows that the third one didn't do a bit of good.

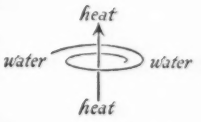
"SY" MARTIN, Owensboro, Ky.

What would you have said, Sy, if that had been a wall-eyed pike?

L Y T.

This Diagram Means MONEY FOR YOU

Here's a water heater where the "heat's inside the water". All the heat goes into the water as it should, not wastefully into the room.



It's sold only through plumbing outlets—that means money for you.

Write for Dealer Proposition.

THE DUNHAM COMPANY
Berea (Suburb of Cleveland) Ohio
Established 1846

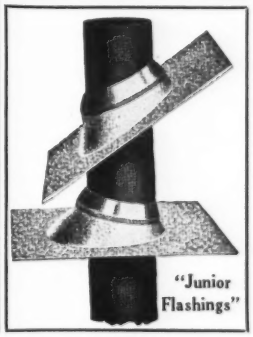
Bull's Eye WATER HEATER

All Lead-Copper-Galvanized Iron

SIMPLEX AND JUNIOR FLASHINGS FOR EVERY ROOF CAN BE HAD IN EACH OF THE ABOVE METALS.

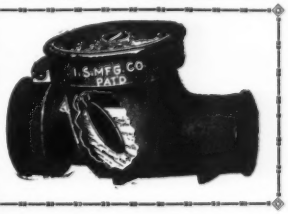
Write for prices and full information on the easily installed, durable SIMPLEX and JUNIOR Flashings.

SIMPLEX MFG. CO.
2644 N. Ashland Avenue
Chicago, Illinois



"Junior Flashings"

WADE
Back Water Valves

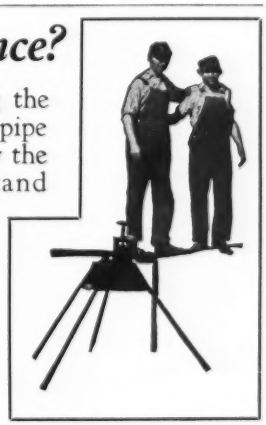


Wade Back Water Valves are absolutely gas and water tight. They are large enough in internal diameter for direct access from floor level for rodding and cleaning the house drains in every direction.

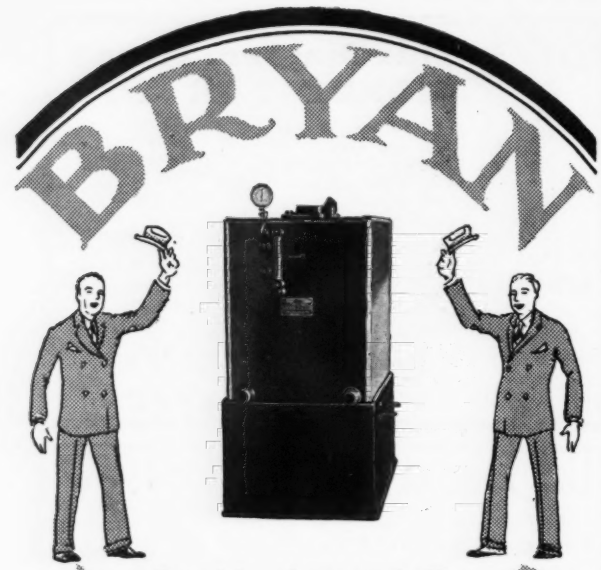
Wade Iron Sanitary Manufacturing Company
551 Fulton Street
Chicago, Illinois

Why take a chance?

Why take a chance using the old, uncertain methods of pipe bending when you can buy the Martin Portable Vise Stand and Pipe Bender for just a few dollars. It does the job right and will last for many, many, years.



H. P. MARTIN & SONS
626 E. Second St.
OWENSBORO, KENTUCKY



In this modern age, specialized products are very much in demand. A product made to serve one purpose is certainly better for that purpose than one which is converted to a use entirely foreign from that for which it was originally intended.

Bryan Boilers are designed for use with Oil and Gas burners *and nothing else.* Years of patient effort and experimentation are reflected in the perfected BRYAN. A BRYAN allows the utmost in economy with the greatest ease of operation and years of trouble-free service.

Alert dealers are finding the Bryan Boiler to be a very profitable article to merchandise. Every oil user is a live prospect and the sales resistance is small. It couldn't be otherwise when users everywhere are reporting a savings of 30 to 50% in their oil bills.

Bryan Steam Corp.
Peru, Indiana

Bath a Day Movement

Every industry needs to carry on a certain amount of educational work. It must be done constantly and consistently and it is always the case that those industries which have been most active in carrying educational work to the public have been most successful. The whole Bath a Day Movement, carried on now for something like eight years, has undoubtedly done much to help the plumbing industry. Tributes to the movement from experienced publicity men, as well as from teachers, school officials, and the public generally, show that it is a plan calculated to win favor.

167

WE are constantly in recepit of inquiries from school teachers and school officials. Each such inquiry is referred to a local association, if there is one. Otherwise, it is referred to the state association. Most of those inquiries fall by the way and are never developed.

Not always, of course. W. T. Polley, secretary of the Kansas Master Plumbers Association, takes action. He writes a letter to the teacher or other person making the inquiry and endeavors to secure all the information necessary to make the presentation of copies of "The Story of the Bath" effective.

John W. Clark, executive secretary of the Association of Master Plumbers of the State of Maryland, recently forwarded an inquiry from the librarian of Baltimore for copies of the booklet to be placed in the twenty-six branches of the library.

If you have never read "The Story of the Bath," write us for a copy. When you have read it you'll want to use it in your local publicity efforts.

Epigrams—For Your Use

A poor girl who is called pretty is really handsome.

* * *

A man is generous to a fault when he fails to correct it.

* * *

An exchange of servants is one way to terminate feminine friendships.

* * *

If the wild waves really say anything, they probably tell fish stories.

* * *

Some men never respect gray hairs until they get some of their own.

* * *

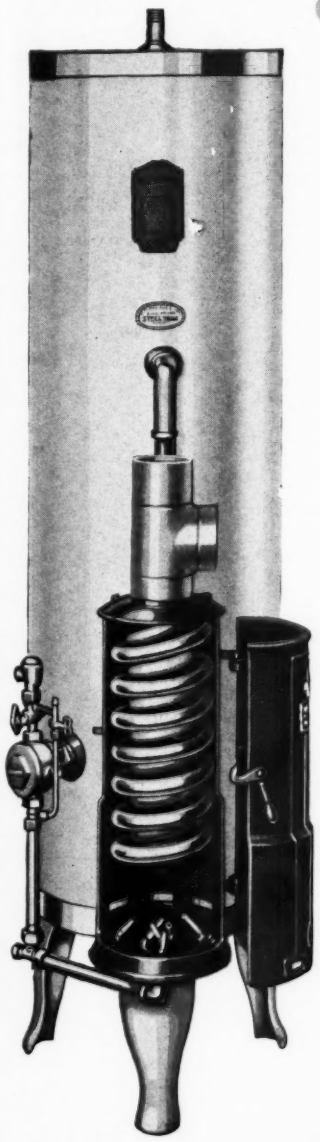
A man is always discovering things that others knew long ago.

OZARK ASSOCIATION HOLDS SECOND MEETING

The newly organized Ozark Zone Association of Master Plumbing and Heating Contractors recently held its second meeting in Springfield, Mo. About thirty-five representatives were present from the various cities in the Southwest section of the state. Beside the regular members, Fred J. Praechter of St. Louis, president of the state association, and Edward Quinn, also of St. Louis, chairman of the state association's business management committee, were among those present.

The officers of the Ozark association are: Fred Hamm of Joplin, president; C. E. Cook of Springfield, vice president; G. W. Tritbar of Neosho, treasurer; J. H. Boyd, 317 East Commercial street, Springfield, secretary.

NEW!



Even Five Great Features Weren't Enough for This New Hotstream Automatic

Not when plumbers the country over have grown to believe that when **HOTSTREAM** decided to make a complete automatic storage heater—it would be *some* outfit!

And it is that—for besides such outstanding features as:

Famous Hotstream Heavy Double Copper Coil Heater equipped with Barber Burner;

Tank double extra heavy of copper bearing steel, for lifetime service;

Passover Pilot—a new and better way of pilot light control;

Throttling type Thermostat with dirt trap for insuring continuous perfect performance;

Hotstream Automatic Draft Regulator to prevent down drafts, and the heat losses up flue.

It embodies many other potent producers of sales, such as the "C" Valve for correct gas consumption, the finest rock wool insulation, the full-rated tank capacity, the graceful 9-inch legs, the beautiful lasting lacquer finish in striking colors.

Here's in reality the "boom" every plumber wants in his business. Many are already in on it. If you're not—don't delay writing for details. Do it TODAY.

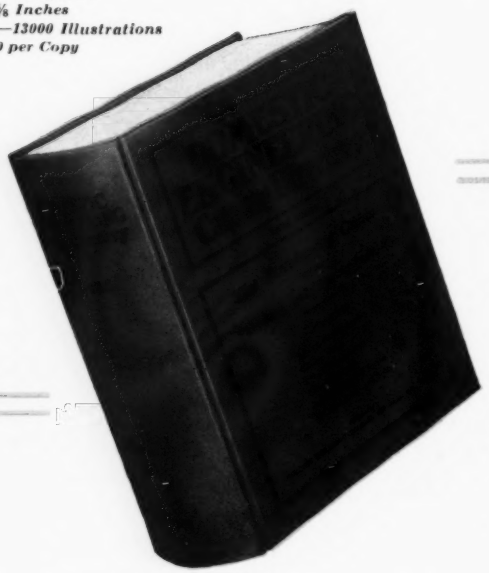
THE HOTSTREAM HEATER CO.
Makers of Heaters That Heat
CLEVELAND, OHIO

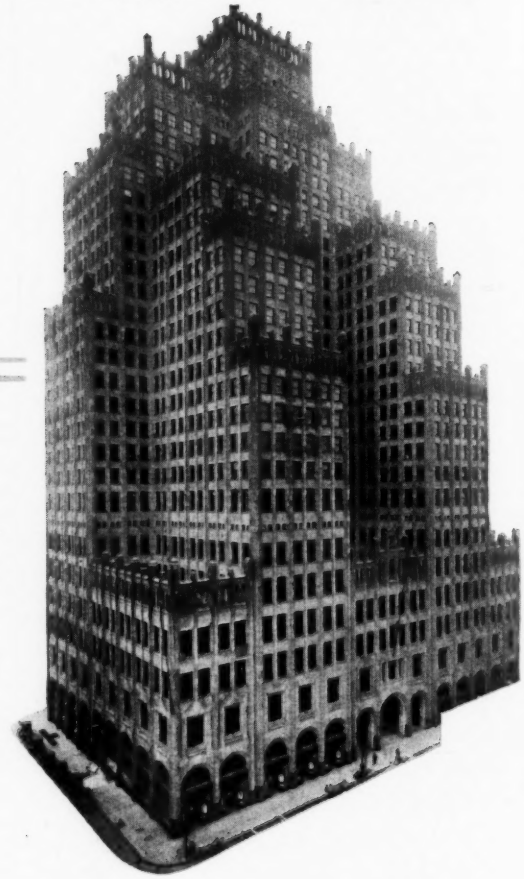
HOTSTREAM
AUTOMATIC STORAGE
HEATERS

Know Your Sources of Supply—Thru—

DOMESTIC ENGINEERING CATALOG DIRECTORY

Standard Catalog Size
7¾ x 10⅝ Inches
2000 Pages—13000 Illustrations
Price $5.00 per Copy





A building like the one illustrated above, requires many thousand items that are manufactured, distributed and installed by the plumbing and heating industry.

And, of course, there are many manufacturers that produce one or more of the various items needed.

It is the job of the buyer of plumbing and heating supplies to know these sources of supply—and he can—thru **Domestic Engineering Catalog Directory.**

This Directory has been built to serve the buyer of plumbing and heating supplies. It gives the names of all the manufacturers of the various items connected with the industry.

Mr. Buyer—

Do you know there are over 300 manufacturers of the various types of water heaters on the market?

You can find these manufacturers listed under the kinds of water heaters they make in Domestic Engineering Catalog Directory.

It gives the various trade names that the manufacturers use. In fact, **Domestic Engineering Catalog Directory** gives the buyer a complete record of all items manufactured in the plumbing and heating field, and enables him to find these sources of supply in a simple, quick and efficient way.

Over 500 of the manufacturers have placed their catalogs in the 1928 Directory, making it possible for the buyer to find illustrated and described practically any type of item that may be wanted.

Domestic Engineering Catalog Directory can be had for the very low price of $5.00 per copy. If you have not yet ordered your 1928 copy, send your order in now, as the edition is limited.

Published by

Domestic Engineering Co.

1900 Prairie Avenue **CHICAGO, ILLINOIS**

Plumbing *and* Heating Patents

Heating Department

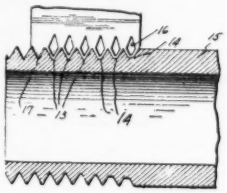
1,666,162. Thread Cutter. Harvey P. Bostaph, Detroit, Mich. A threading device comprising a cutting member having cutting teeth formed thereon, said teeth having a recess formed in the advancing face of said teeth adjacent to and inwardly of the cutting edge thereof; and a guide tooth, free from a cutting edge, adapted for riding in channels formed and for resisting backward thrust of member.

* * *

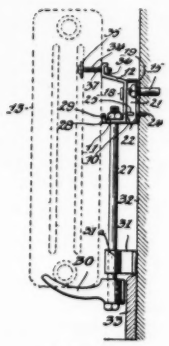
1,665,436. Valve Construction. Leon Bloch, Cleveland, Ohio, assignor to The Republic Brass Company, Cleveland, Ohio. In a valve structure, the combination of a valve casing having an extension, a valve in said casing, a stem for operating said valve, said stem being disposed in said extension an auxiliary stem non-rotatably secured within said first-named stem, and means for varying the relative longitudinal positions of said first-named stem and said auxiliary stem.

* * *

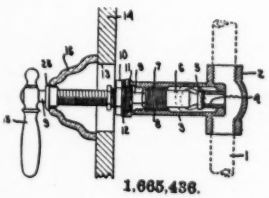
1,666,866. Radiator Hanger. DeWitt C. Ruff, 2d, St. Paul, and James H. Healy, Mahtomedi, Minn., assignors to John A. Healy, James H. Healy, and Daniel W. Hickey, St. Paul, Minn. A radiator hanger comprising a head formed with the back adapted to be hung upon a wall, means for suspending a radiator from said head and an offset adapted to be removably attached to the back of



1,666,162.



1,666,866.



1,665,436.

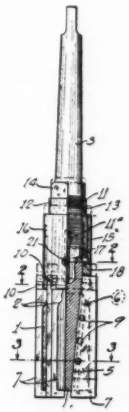
said head and arranged when so attached to support said head upon a wall at a predetermined distance therefrom.

* * *

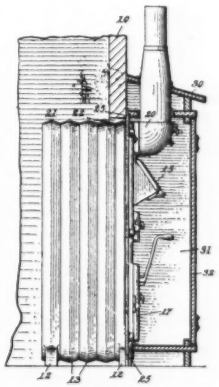
1,666,926. Reaming Tool. Robert R. Davis, St. Louis, Mo., assignor, by mesne assignments, of one-half to George C. Albers and one-half to John D. Young, St. Louis, Mo. A reamer comprising a bar having an annular series of radial slots opening upon its peripheral face and being externally threaded rearwardly of the slots, and cutters disposed in the slots for movement longitudinally of the bar, in combination with an internally threaded collet disposed for axial movement upon the bar and having engagement with the cutters and an internally and externally threaded barrel also disposed upon the bar and having threaded engagement with both the bar and the collet for shifting the collet and the cutters axially of the bar.

* * *

1,667,164. Heating Apparatus. Archer A. Landon, Buffalo, N. Y. The combination of a structure to be heated having an opening in a wall thereof, with a heating apparatus of smaller outline than that of said opening and comprising a plurality of connected sections adapted to confine a heating fluid; the back and intermediate sections thereof extending freely through said opening and into said structure, and a front section extending without



1,666,926.

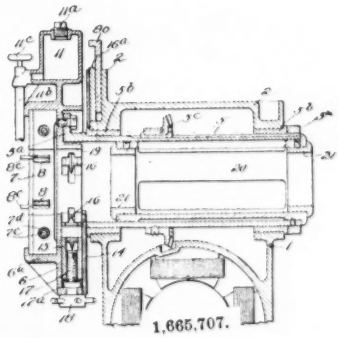


1,667,164

said structure and having openings in its exposed portion, a peripheral flange extending entirely around an exposed portion of said heating apparatus for securing said heating apparatus, as a whole, in position partly within and partly without said structure, and for sealing the space between said heating apparatus and the edge of the opening surrounding the same whereby to prevent communication between the interior of said structure and the interior of said heating apparatus by way of said space and the openings in said front section, substantially as specified.

* * *

1,665,707. Device for Cutting Pipe. Jacob Levy, Boston, Mass. A device for cutting pipe, embracing in its construction a supporting frame, a revoluble hollow shaft mounted therein and provided with interiorly disposed removable pipe-supporting and centering means, a tool-



1,665,707.

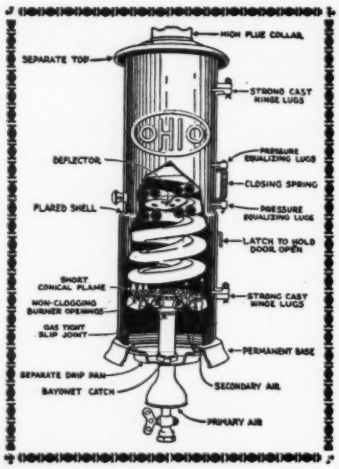
carrying head secured to said shaft, a pair of opposed slide blocks mounted on said head, thread-cutting dies adjustably secured in said blocks, and means comprising outwardly thrusting springs and opposed automatically controlled screws engaging said blocks, for automatically moving said blocks apart to decrease the depth of the thread cut toward the end of the cutting operation in order to avoid formation of a projecting burr at the end of the thread, substantially as described.

* * *

1,666,173. Pipe Chain Vise. Henry Heide, New York, N. Y. A chain vise of the character designated comprising a base, means thereon for supporting an article to be clamped, a clamping chain, means for holding one end of said chain, an adjustive tightening screw connected with the other end of said clamping chain, a stationary abut-

OHIO
No. 25
HEATER

Our Catalog



It's in the Spring and Summer that water heater profits are the greatest.

At least, that's true of Ohio Heater dealers and they tell us that it requires very little effort on their part to make a lot of sales in the warm months.

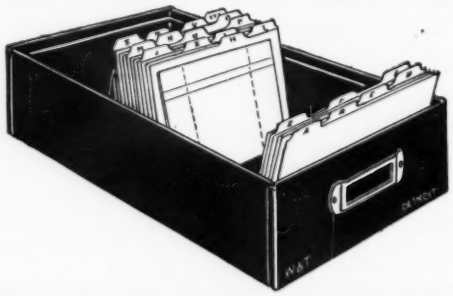
Ask your jobber or write us for our sales plan.

OHIO HEATER COMPANY
Columbus, Ohio

Save This Advertisement and Get a $3 Merchandise Present *Free*

"ALPHA-POSTING-TRAYS"

One of the many office devices you should know about



"Alpha-Posting-Trays" are made from six to sixteen inches in width and in all heights. Both in twelve and eighteen inch deep, from front to back, with and without removable covers.
Prices on Request.
Please send sample printed form, when inquiring for prices.

FREE ☞
This handsomely built Valuable Paper "Steel-Safety-Box"

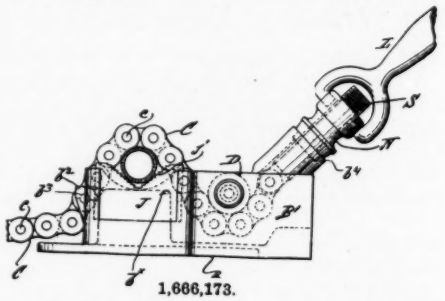
ACT NOW! MAIL IN COUPON TODAY—!

☛ **Pin this Coupon to your letter and mail in to-day** ☚

Superior Equipment Co. Dept., M-A-9
320 Beaubien St., Detroit, Mich., U. S. A.

Please mail in (without obligation) descriptive matter of your complete line, and tell me how we can obtain your $3 valuable-paper--steel-safety-box free with the purchase price of only $7.75 or over in office equipment, as listed, as an introductory offer to gain new accounts.

ment sleeve projecting from said supporting means and inclined upwardly and outwardly at an angle to said base, a power nut engaging said screw and bearing upon said

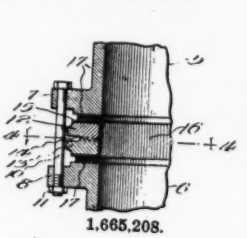


1,666,173.

abutment sleeve for moving said screw in an upward and outward direction to tighten said chain, and a deflector interposed between said adjustive tightening screw and the means of support for the article to be clamped.

* * *

1,665,208. Pipe Joint. Lyman C. Huff, Chicago, Ill., assignor to Universal Oil Products Company, Chicago. A joint packing adapted for use in connecting lengths of tubing through which a heated medium is passed comprising relatively movable interengaging annular rings, a corrugated annular gasket enclosing portions of the rings, the corrugations in the gasket being adapted to take up movement of the joint.



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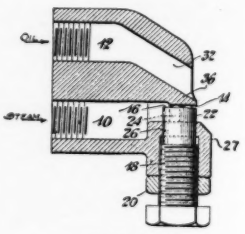
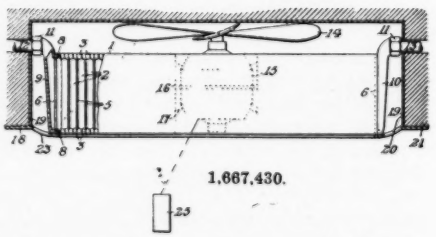


1,666,268.

1,666,268. Oil Burner. Edward Skillman, Bartlesville, Okla., assignor to Doherty Research Company, New York, N. Y. A fuel oil burner comprising a body having a steam passage therein, the outlet of the passage being formed by two opposed parallel plane surfaces one of which is constituted by a screw adjustably mounted in the body, a fuel nozzle extending back and upwardly from said plane surfaces at an acute angle with respect thereto whereby fuel oil issuing from the fuel nozzle is received at an acute angle on the sheet of steam issuing from between said plane surfaces, the bore of the fuel nozzle being circular in cross-section and the end thereof being formed on a slant which is substantially perpendicular to the plane surfaces of the steam outlet.

* * *

1,667,430. Apparatus for Exchange of Heat. Victor Mauck, Merion, Pa. In a heating system, a radiator of



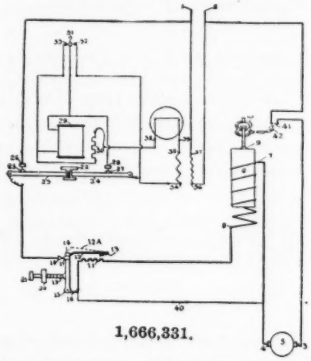
1,667,430.

cellular structure, formed of thin sheet metal walls, forming passageways for air; of a casing exterior to said radiator, in spaced relation therewith; and means ar-

ranged to effect the forced circulation of air between said casing and radiator in one direction, and through the radiator in the opposite direction.

* * *

1,666,331. Electrical Safety Control Circuit for Automatic Burner Equipment. Frank Fischer, Larchmont, N. Y., and Arnold Francis Van Pelt, Interlaken, N. J., assignors to Grant Oil Burner Corporation, Wilmington, Del. In an electrical control circuit for burners having gas ignition pilots, a fuel-supply motor, a heat-requiring

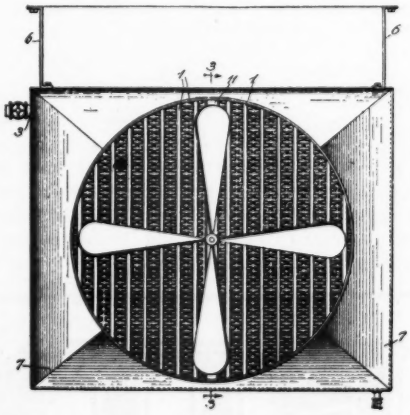


1,666,331.

conductor, the conductor being located adjacent to the pilot so as to be heated and thereby rendered conductive by the pilot when the pilot is ignited, the conductor being connected in series with the motor so that the motor cannot start when the pilot is not ignited, the conductor being so proportioned as to be heated by current passing through it and thereby maintained in a conductive state independently of the pilot when the motor and conductor are energized so that the motor will continue to run if the pilot goes out while the motor and conductor are energized.

* * *

1,666,907. Heating Unit. Arthur B. Modine, Racine, Wis. In a device of the kind described and in combination, a heating unit formed of a series of adjoined heating elements, a casing around said unit and extending there-



1,666,907.

from, a fan in said casing, a motor on the opposite side of said unit and a shaft connecting said motor and fan, one of said heating elements having a bracket integrally formed thereon and extending on opposite sides thereof to support said motor and provided with apertures to form bearings for the fan shaft.

* * *

1,667,314. Flow Regulator for Oil Burners. Jackson G. Gilmore and Augustus J. Frame, Columbus, Ohio. A fuel regulator for oil burning systems comprising in combination with a fuel line and a source of air pressure, a

NIEDECKEN SHOWER STALLS

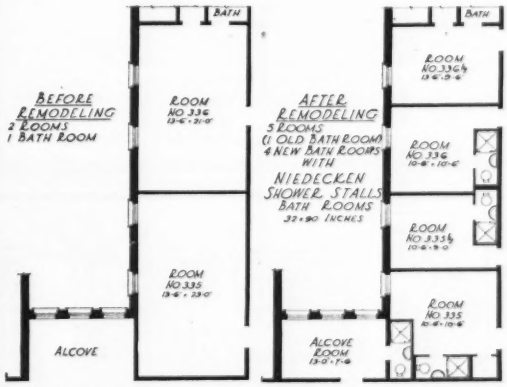
PATENTED

ARE COMPLETE WITH

NIEDECKEN SHOWER

The Stall is an Integral Leak Proof Fixture; the walls are 1/8-inch copper bearing steel which, with the riser, are welded to the bottom. After installation it must be finished with waterproof enamel paint.

The possibilities for installations of Niedecken Shower Stalls in new or remodeling work are unlimited; they can be installed in a residence bed room.



Illustrating the remodeling of a hotel; in this operation two rooms were rearranged into five rooms each with a modern bath room by using Niedecken Shower Stalls.

Write for Bulletin D. 10X

HOFFMANN & BILLINGS MFG. CO.

MANUFACTURERS SINCE 1855.

MILWAUKEE, U. S. A.

Our Catalog is

If You Could Test It—

If you could test the copper that is used in Reichert "Toledo" Floats, you'd find it the kind that you yourself would use if you were making them.

It's the very highest quality, yet "Toledo" Floats are reasonably priced.

REICHERT FLOAT & MFG. CO.
2238 Smead Ave. -:- Toledo, Ohio

Gerstein Copper Boilers

Made of Copper for Wear

Made with Care for Satisfaction

H. GERSTEIN & SONS
Boston, Mass.
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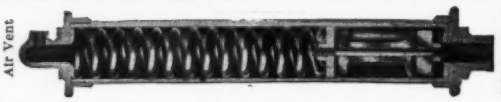


The STINSON Patent Equalizing Valve

A system designed to prevent Water Hammer and any reaction in the water supply system in the building. If properly installed, the Stinson Equalizing Valve is guaranteed to completely and thoroughly remove any vibration in water pressure systems of piping.

The Valve is made in sizes as conditions require.

Stock sizes: 1¼, 1½ and 2¼ inch.

1¼ inch will take care of from ½ inch to 1¼ inch supply.

1½ inch will take care of from 1 inch to 2 inch supply.

2¼ inch will take care of from 2 inch up to 4 inch supply.

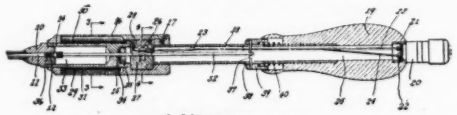
Send rough sketch of piping in basement and I will advise you the proper place to install the equalizer.

Robert Stinson, 1632 Forbes Street, Pittsburgh, Pa.

casing including a pair of separate chambers, means situated in said fuel line for maintaining a normal liquid fuel level within one of said chambers, a valved regulated port carried by said casing and disposed above said fuel level and serving to establish communication between the two chambers, means for introducing air into said fuel line to cause the liquid to elevate and flow through said port and into the other of said chambers, and a supplemental valve carried by said casing and serving to regulate an orifice located below said fuel level permitting of a constant flow of liquid between said chambers.

Plumbing Department

1,667,250. Electric Soldering Iron. Walter Ensdorf, New York, N. Y., and Johannes Sandberg, Elizabeth, N. J. A device of the class described comprising a soldering head having a passageway therein, a cylindrical hollow

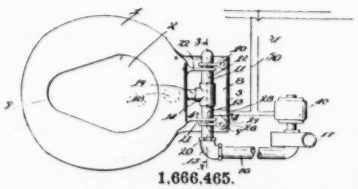


1,667,250.

body split into two sections, a semi-circular cover and an additional semi-circular member, a cylindrical removable reservoir in said body having the soldering head engaged therewith, a hollow stem extending from said body, a handle on said stem, removable blocks in said body having terminal posts thereon, a heating unit encircling said reservoir, a plunger in said stem and reservoir slidable therein, a packing in said reservoir, and a sleeve mounted slidably on said stem connected to said plunger for retracting the same.

* * *

1,666,465. Ventilating Seat for Toilet Bowls. Charles C. Norris, Riverside, Calif. A toilet bowl of the class described having a seat thereon, there being a passageway through said seat adjacent the rear of the same com-



1,666,465.

municating with the interior of said bowl, said passageway comprising the sole means whereby the interior of said bowl may be ventilated, brackets on said seat, a hollow pintle extending through said brackets and being rigidly secured thereto, said pintle being mounted for

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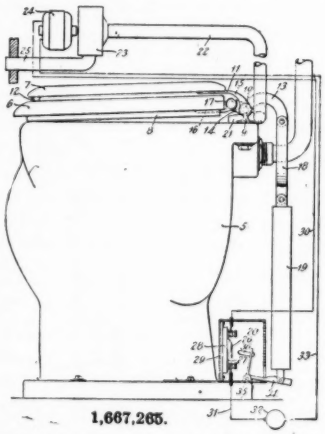
rotation on said bowl, thereby establishing a hinged connection between said seat and bowl, said hollow pintle communicating with said passageway in said seat, a lug on said pintle, a bus bar plunger casing on said bowl, a bus bar plunger slidably mounted in said casing and projecting therefrom, said lug being adapted to engage said bus bar to depress the same, a pair of electrical contacts adjacent said plunger whereby when said plunger is depressed, an electrical circuit is formed through said contacts, said circuit serving to operate a blower, said blower communicating with said hollow pintle, whereby gases may be removed from said closet bowl, a socket in the forward end of said seat, a spring-pressed plunger in said socket, said plunger serving to resiliently elevate said seat and release said bus bar plunger from engagement with said contacts.

* * *

1,667,265. Ventilating Apparatus for Toilet Bowls. Enoch E. Neal, Malden, Mass. In combination a toilet bowl, a vent pipe communicating therewith, a suction pump connected to said pipe, an electric motor for said

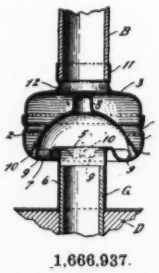


1,667,265.

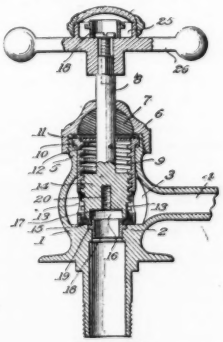
pump, a switch for said motor, a seat for said bowl, and a weight rigidly connecting said seat and said switch, whereby the latter is operated by said seat to control the operation of said motor.

* * *

1,666,937. Refrigerator-Drain Trap. Charles E. Kilbourne, Worcester, Mass., assignor to Harder Refrigerator Corporation. A refrigerator trap comprising a bowl



1,666,937.



1,667,580.

member having a raised central overflow orifice and a coupling sleeve integrally joined to the bowl member at the overflow orifice, the annular water pocket thus provided in the bottom of the bowl being substantially semicircular in cross section, and a substantially hemispherical baffle loosely arranged over the overflow orifice and having its bottom edge discontinuous thereby providing spaced

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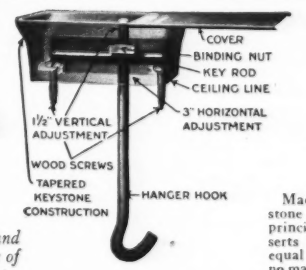

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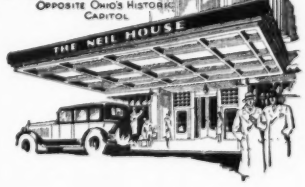

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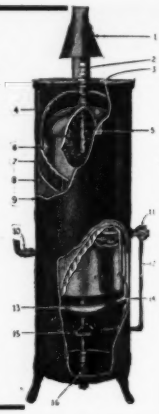

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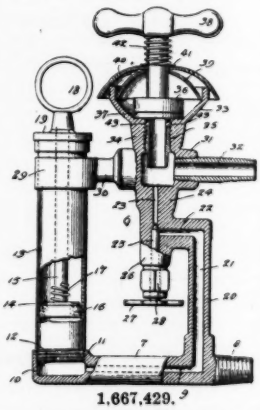
feet, the diameter of the bottom of the baffle being substantially that of the deepest part of the water pocket and the feet having each a central vertical rib the bottom of which is shaped substantially to the curve of the water pocket so as to bear against an upwardly curving portion of the water pocket wall and allow the feet to rest in the bottom of the pocket.

* * *

1,667,580. Faucet. William F. Albrecht, Salt Lake City, Utah. A faucet of the class described comprising a body having a valve seat therein, an internally threaded barrel removably fitting in the body and having holes therein adjacent its lower end, a washer in the lower end of the barrel engaging the seat, a valve head threaded to engage the threads in the barrel and having a recess in its lower end which forms an annular projection for engaging the washer, a stem connected with the head, a handle on the stem, a cap encircling the stem and removably connected with a part of the body and a sleeve having a part extending into the hole in the washer for preventing spreading of the same.

* * *

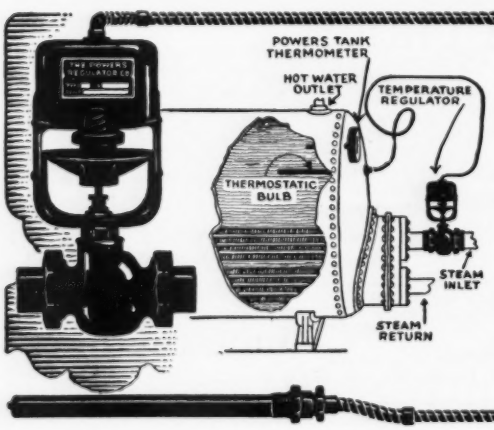
1,667,429. Blowtorch. Bruno Martin, Saginaw, Mich. In a blow torch, a member having a lateral pipe for connection with a tank, and a filling cup, a closure for the filling cup, a valve controlling the outlet from the filling cup and having a rod passed through said closure, and supplemental closure means within the said closure and within the cup and through which the valve rod loosely passes.



1,667,429.

Eugene J. McGuirk, president of the Automatic Heat Corp., Gulfport, Miss., Gulf Coast dealers for Ray, Aetna and Nokol oil burners, has recently become associated with E. W. Carr, Inc., New Orleans, La., in charge of the engineering department. Mr. McGuirk brings to the Carr company a wealth of heating and oil burning experience, and relieves Chester W. Carr, vice-president, of the largest part of the engineering work. Mr. McGuirk still maintains his connection with the Gulfport concern.

Studer Bros., Asheville, N. C., have been awarded the plumbing and heating contract on the Asheville courthouse with a bid of $160,000.



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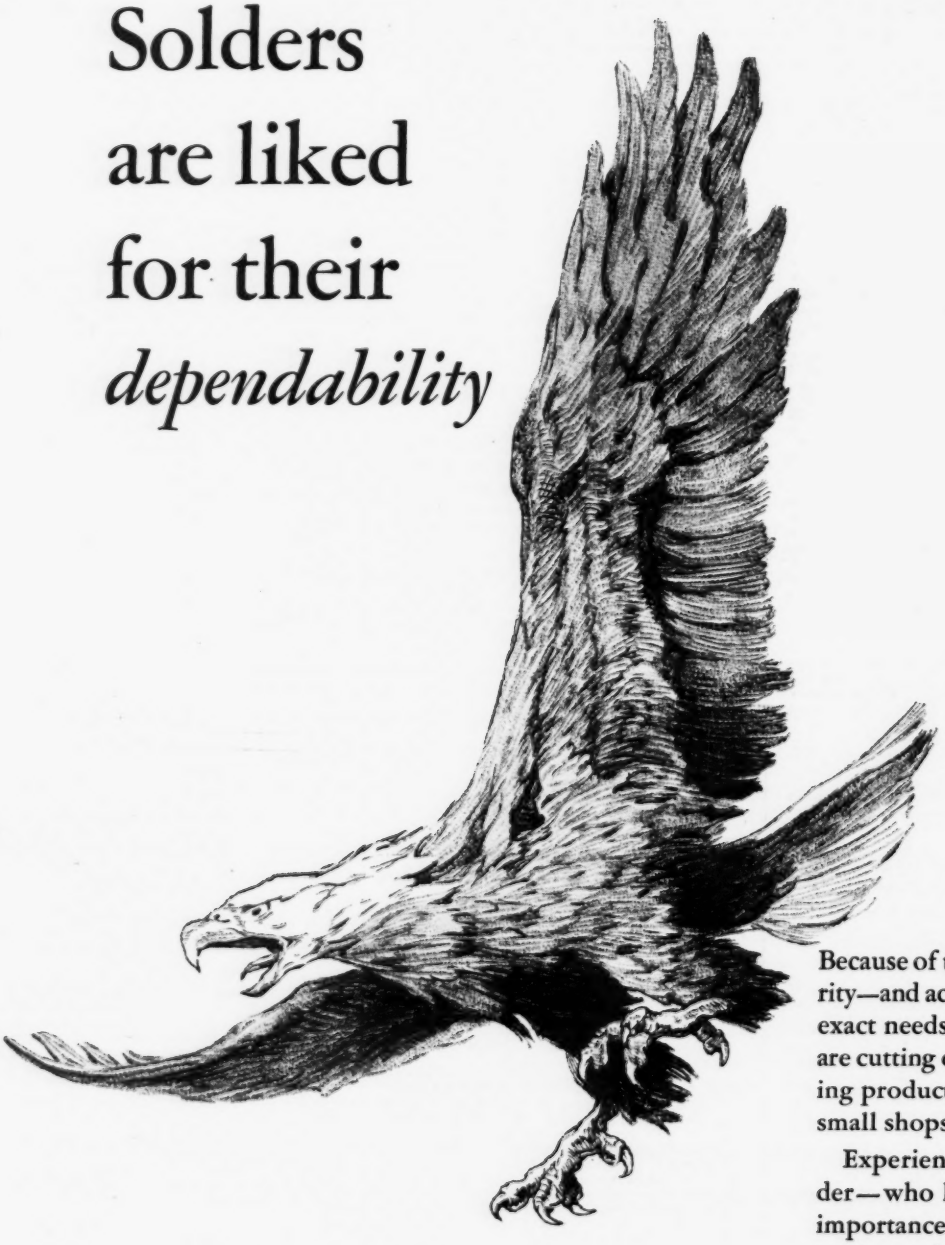

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